

SEPTEMBER 15, 1958

PURCHASING

The Methods and News Magazine for Industrial Buyers



Inventory Management

Value Analysis

Obsolescence Control

Supplier Relations

Material Control

Purchasing's
Broad Role
at Rheem...page 67

George Papas, Director of Purchases
Rheem Manufacturing Company

For other timely articles, see Table of Contents page 5

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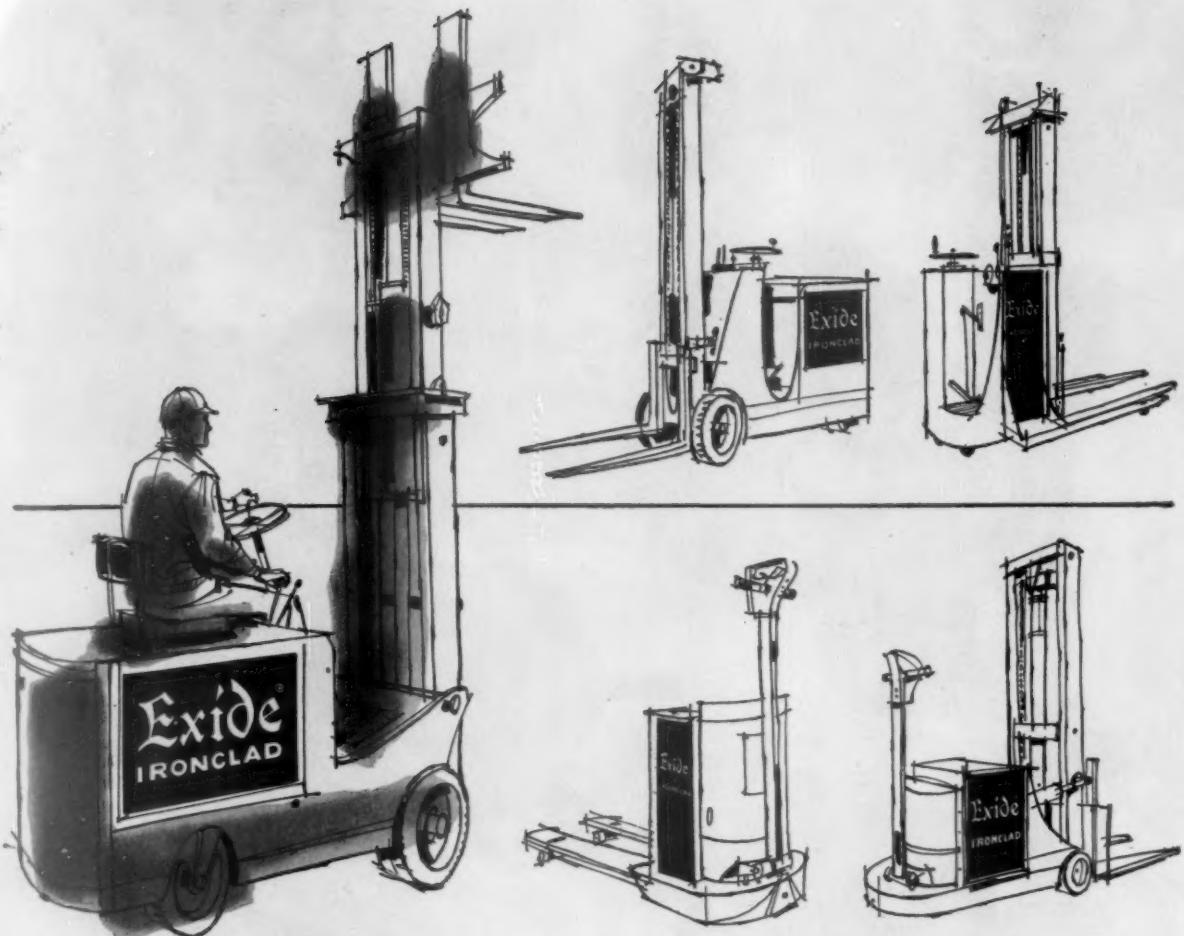
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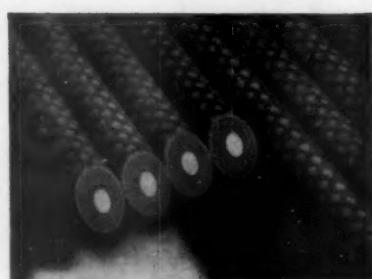
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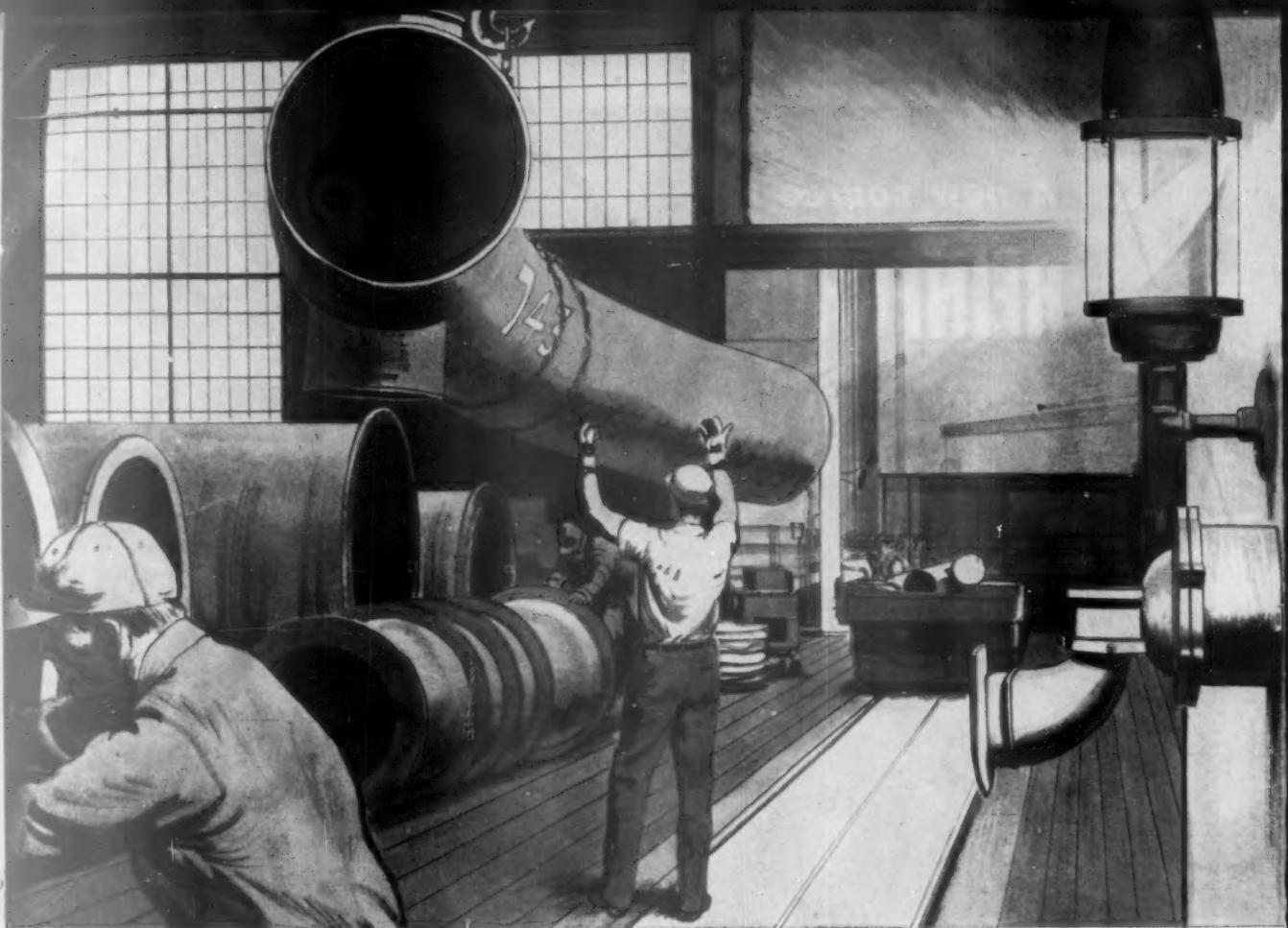
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The Methods and News Magazine For Industrial Buyers

SEPTEMBER 15, 1958

VOLUME 45, No. 6

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Pulse of Business

The Coin Is in The Air

Right now—today—the economy is at a critical turning point. Psychologically, Labor Day marks the start of a new phase of the business cycle. Usually the economy picks up after the holiday. It should this year too.

But the big question is whether the improvement will be more than seasonal. That's why the decisions being made right now by P.A.'s are so important. The economic statistics for September and October will very likely tell the story of our recovery pattern. Will there be a gradual upswing? Are we getting set for a boom ride? Or will we follow the '49 and '54 recovery course when slight slumps followed the first signs of an upturn?

Queasiness Over the Auto Outlook

Looking back, it appears we hit recession low last April. This would make the '57-'58 slump the sharpest, shortest business decline of the postwar years. Since then, the upturn has been a little sharper than many economists and businessmen expected.

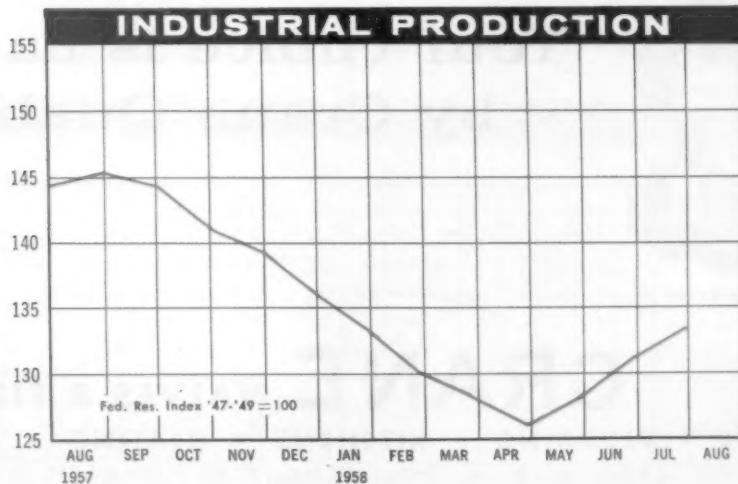
What could really scramble the deck is the auto situation. A prolonged strike would, of course, be a damper on the economy. At this writing, auto contract negotiations are still hanging fire. One source—which we can't remember having ever missed a call on a major labor-management dispute—is betting 60-40 that there will be a full-scale strike.

Right now, we doubt whether even the principals in the contract negotiations know for certain what's going to happen. But the possibility of a strike seems to be getting stronger.

The auto industry also figures in another important economic imponderable. How well will the '59 models catch on? Automakers are making a show of confidence—at least in public. Early industry predictions are for a 5.5 million car year compared with around 4.3 million this year. If the auto forecasters prove wrong, it won't be the first time. They were this year. But their hoped-for-5.5-million figure doesn't seem unreasonable. It might even be on the low side.

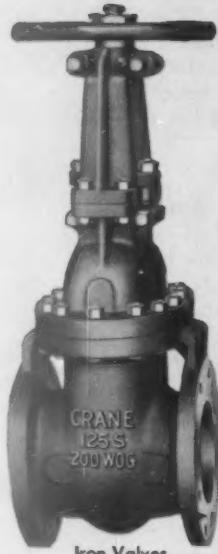
Possibility of an auto strike creates some queasiness. Otherwise the economic outlook is promising. A close look at some of the im-

Industrial production improved for the third month in a row. The Federal Reserve Board's index hit 133 in July, which means that we have recovered all the ground lost since January of this year.



Reminder to Purchasing Managers

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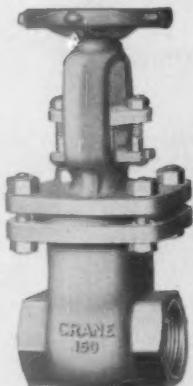
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Pulse of Business

portant business indicators shows that we are on a definite upswing. Here's the picture:

Gross National Product: Recently revised government figures show that business in the second quarter was better than originally estimated. The final figure is \$429 billion (annually)—1 billion more than first reported. This means that from the recession depths of the first quarter, GNP improved at a \$3.2 billion per year rate during the second quarter.

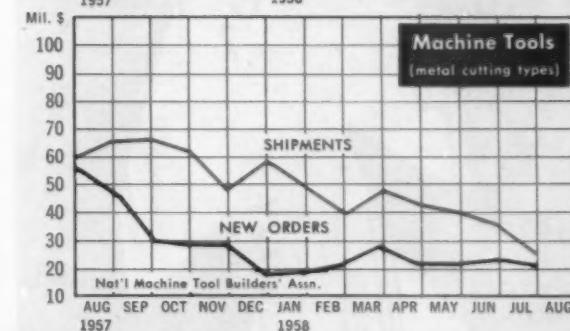
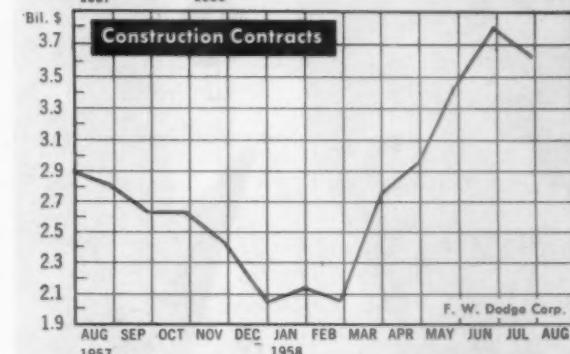
We are still a long way from the all-time GNP high of \$445.6 billion set in third quarter '57. However, some government economists predict that we'll be up around the \$445 billion mark in fourth quarter '58.

Construction: Looks like it's heading for a record year. F. W. Dodge's report for July shows construction contracts at \$3.6 billion—24% over the same month a year ago. Despite the recession, construction has improved so much that total contract awards for the first seven months of 1958 are 3% ahead of the same period last year.

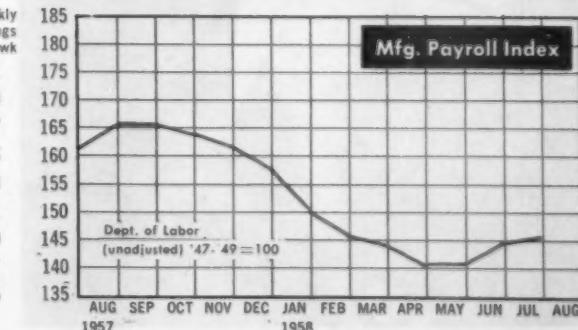
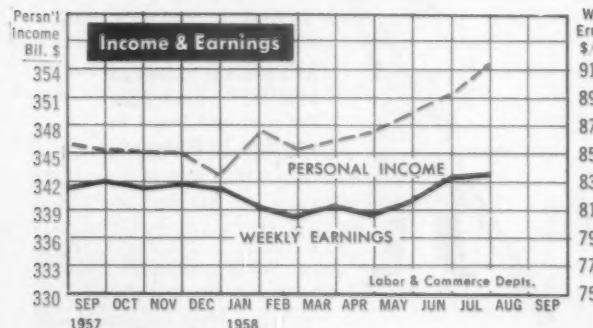
Sales, New Orders, Inventories: Signs of improvement. Inventories are still being reduced—but importantly—at a slower rate. And sales—after declining for nine months in a row—showed gains in May, June, and July. New orders are also increasing.

Business Failures—New Business Incorporations: Regarded by many economists as "leading" indicators, the figures here are also favorable. New business incorporations rose from

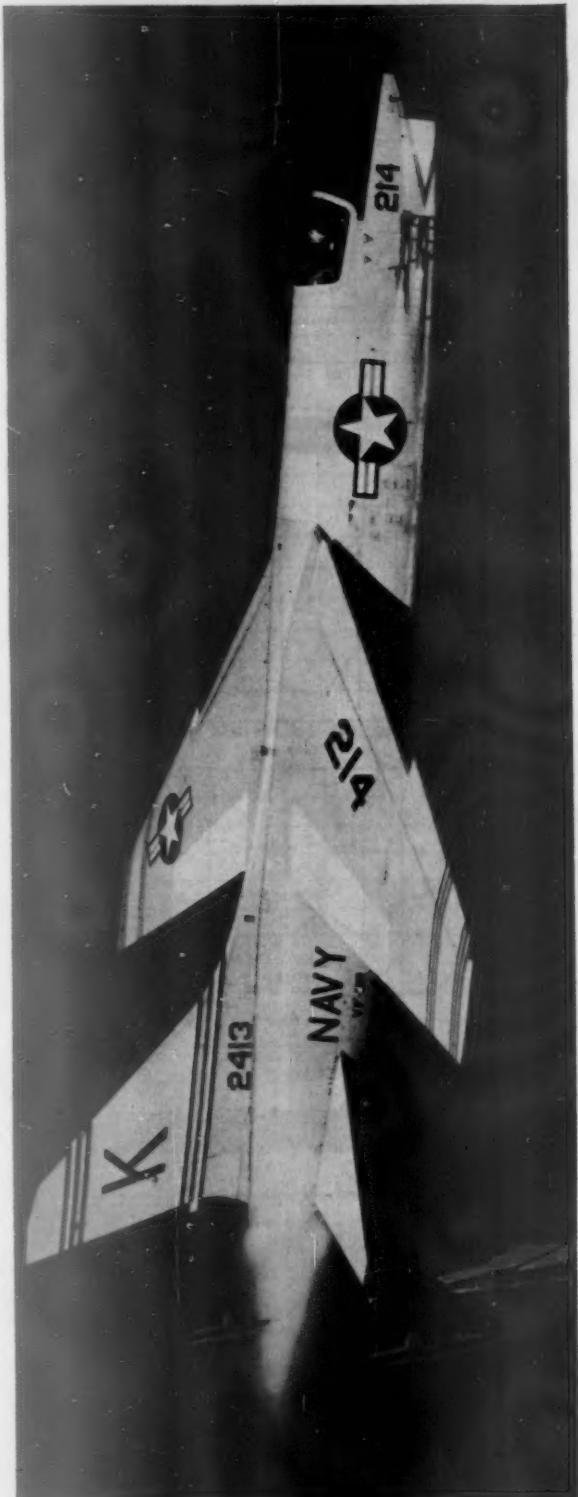
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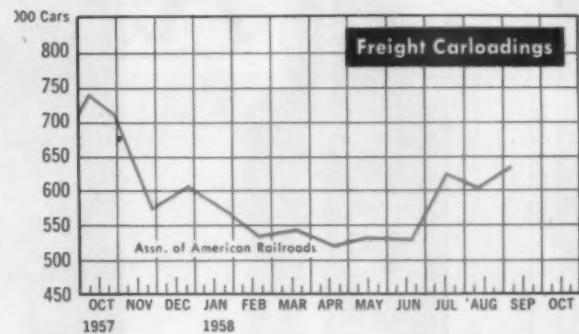
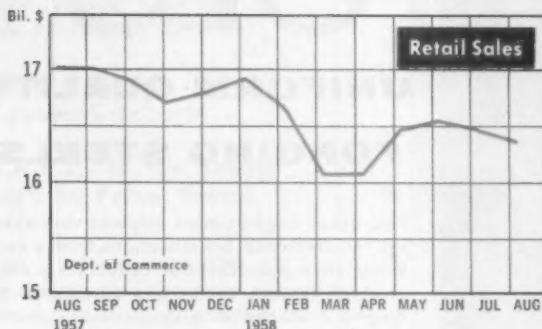
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the February rate of 10,466 to 12,454 in July. Business failures, which hit a recession high of 1495 during March, are down to 1253.

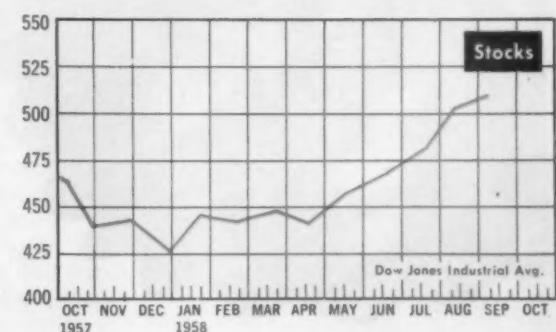
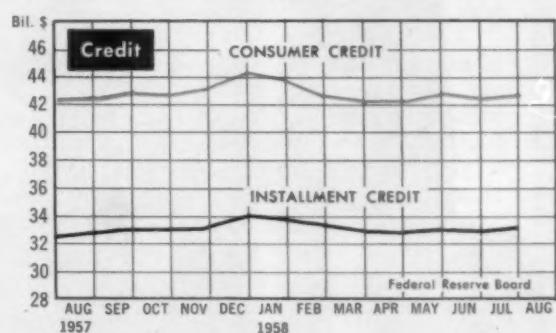
Personal Income: Hit a record-smashing annual rate of \$358.9 billion in July. The figure was inflated by a retroactive pay raise to government employees, but even excluding this lump sum pay hike, personal income in July totaled \$354.3 billion (annually), topping the previous record of \$352.1 billion set in August '57 just before the recession started.

Unemployment: Not so favorable. Latest figures show unemployment at 5.3 million. The number of people out of work declined 143,000 from June to July, but on a seasonal basis the drop should have been more than twice this amount. Encouragingly, a recent Dun & Bradstreet survey shows that 88% of a representative group of companies believe the business pickup will make it necessary for them to add to their labor force.

Manufacturing Workweek: Held at 39.2 hours between June and July. Usually there's a slight decline. The workweek actually increased in the primary metals, electrical machinery and furniture industries.

Even more cheering than specific economic statistics is the fact that the improvement has not been limited to specific industries. It's a broad-based show of strength. An auto strike would certainly set us back, but only temporarily. There's good reason to be confident about the business outlook.

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Pulse of Business

The P.A.'s Outlook

- P.A.'s Are Certain Recession Is Over
- Auto Outlook Causes Concern
- N.A.P.A. Notes Sharp Turn in Price Trend

PURCHASING AGENTS ARE more optimistic about the short term business outlook than at any time in the last year. PURCHASING Magazine's monthly Business Confidence Survey shows that 80% of the purchasing executives contacted believe business will be better during the next three months. Only 4% expect a downturn, while 16% believe business will remain at current levels.

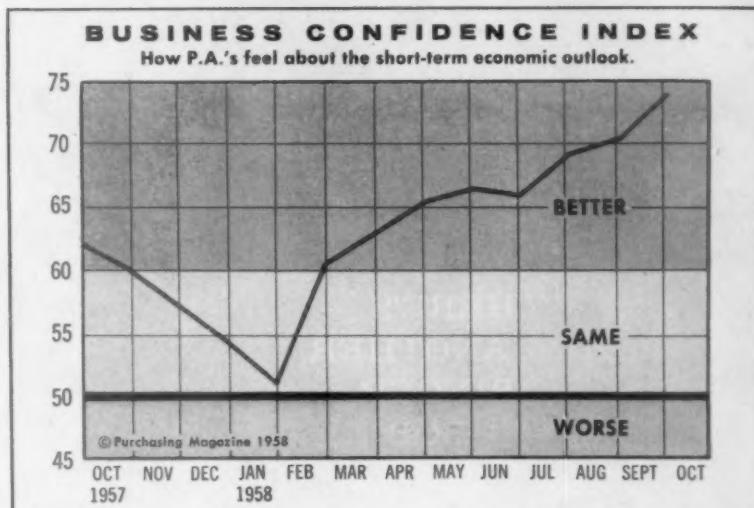
This strong show of confidence pushed PURCHASING Magazine's Business Confidence Index up to 74.1—the highest it has been in the last 12 months.

Recession Is Over

A majority of the P.A.'s seem to feel that the recession is definitely over. They expect business to keep on improving, though at a gradual rate. Many were concerned about the possibility of an auto strike and indicated they would revise their optimistic forecasts if the auto-workers walk out.

Here are some typical comments from a cross section of the purchasing executives who took part in the survey:

- "We feel the upturn has begun but it will be gradual over the next six months."
- "The so-called recession seems to be over and business is definitely on the upturn."
- "Our orders have increased but not to the extent that we can maintain a comfortable backlog. One has the feeling that business can go up or down



Purchasing agents are showing increasing confidence in the short term business outlook. PURCHASING Magazine's Business Confidence Index, which is based on a survey of a representative cross section of purchasing agents, rose to 74.1—a new high for the year. It's the opinion of 80% of the purchasing executives surveyed that business will improve during the next three months.

at the slightest provocation."

- "There is some indication that more lead time will be needed in placing orders."
- "Our business will be slightly better depending on the outcome of the auto industry's labor negotiations."
- "Our orders have been increasing slightly ever since June."

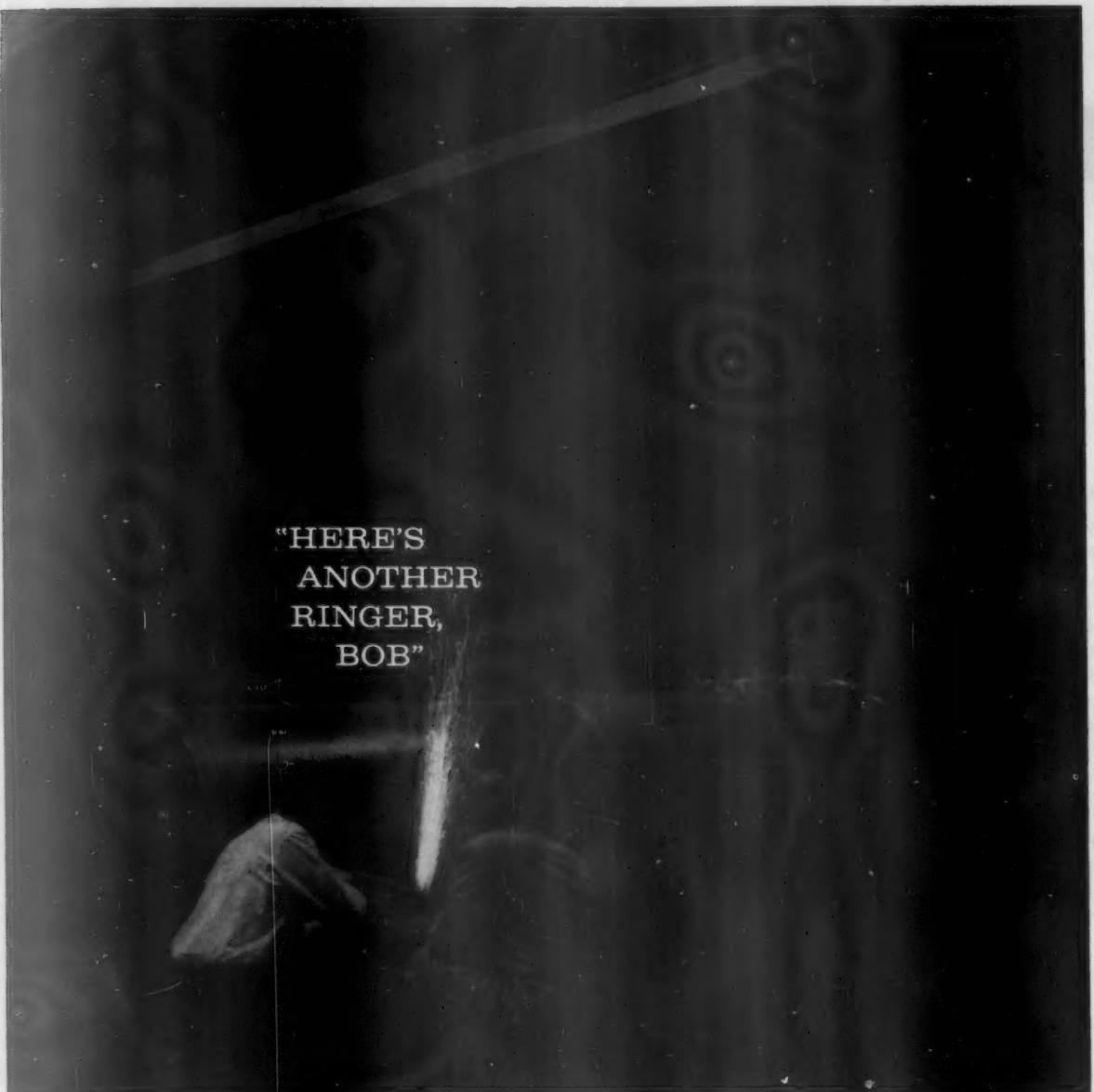
Best Since 1955

The latest report from the National Association of Purchasing Agents' business survey committee is favorable, though slightly less optimistic than the PURCHASING Magazine survey. N.A.P.A.'s August report states that purchasing executives find the business recovery proceeding slowly, with no great upward surge expected in the next few months. However, the committee points out that not since the summer of 1955 have so

many P.A.'s reported improvements in production and new orders.

Commenting on price trends, the N.A.P.A. states that the downward trend in commodity prices came to an abrupt halt during August, "largely as a result of increases in the basic metal industries." Purchasing agents are paying more for the materials they buy, the report adds.

The Purchasing Agents Association of Cleveland also has an encouraging August report: "Except for a few small areas, members of the business survey committee are once again genuinely optimistic . . . the figures showing better production and new orders are the highest recorded since the survey began." However, the Cleveland group warns that an auto strike would change the entire economic outlook.



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ANOTHER
RINGER,
BOB"

It was cold and dark in the shop that night. Everyone had gone but the foreman and Pete Clybourn, Inland mill representative, who was busy preventing a costly slowdown in production.

This company, a manufacturer of steel tanks, had run into some unforeseen trouble. They had inadvertently used a few pieces of the wrong specification steel in the manufacture of a section for a quantity of tanks. But in which particular tanks, nobody knew.

About 3:15 that afternoon Pete had stopped by on another mission and the foreman had mentioned his

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Price Trends

- **Price Increases Put Pressure on P.A.'s**
- **Lead, Zinc Producers Push For Tariff Hike**

PRICE hikes made during the summer by both ferrous and nonferrous suppliers will be undergoing their first major tests in the next few weeks. Purchasing agents will be under pressure to find ways to counteract the higher price tags on some of the most important raw materials they buy.

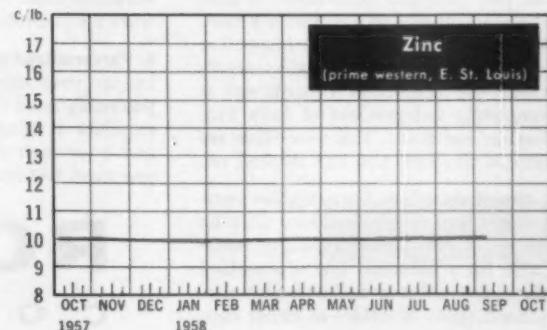
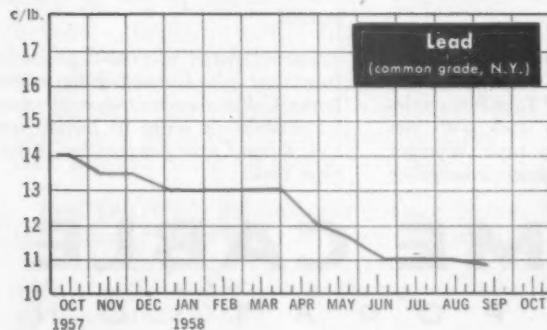
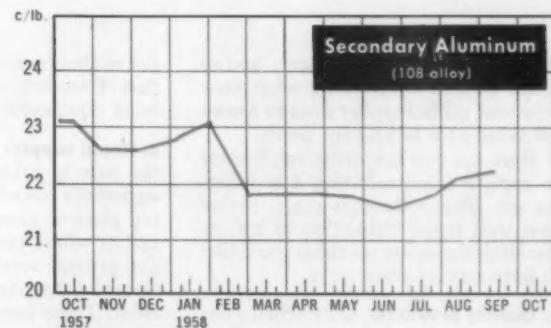
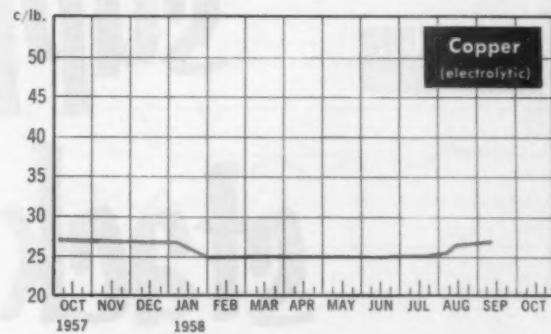
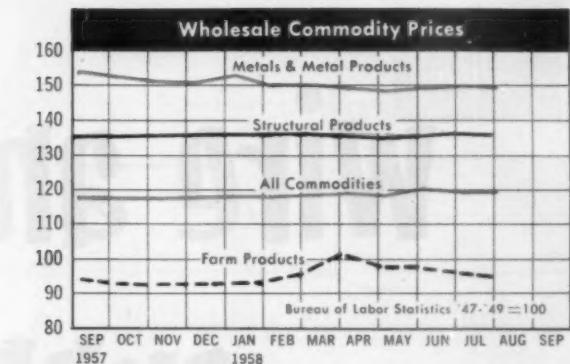
Here's the current situation in a few of the major markets:

Wholesale Prices: Remained at 119.2 percent of the 1947-49 level, according to the latest Bureau of Labor Statistics figures. The wholesale price index now stands 0.4 percent below the record high of last March.

Higher prices for fuels, plywood, and other commodities were offset by the drop in farm products and processed foods. Some primary and secondary nonferrous metals also showed a decline.

Lead: Following the death knell of the Seaton subsidy bill in Congress, domestic lead producers are besieging the Administration with new pleas for aid—in the form of higher tariffs or import quotas. However, major exporters to this country (like Canada, Australia, Peru, and Mexico) and American companies operating foreign mines are exerting pressure of their own to keep the trade doors wide open.

The man in the middle is the P.A. He wants



How does your wire and cable supplier stack up?

As a user of electric power, you've much to gain by learning what your wire and cable supplier does to assure his being able to fill your needs.

Here are five key areas you'll want to explore when selecting a supplier. As you glance through them, notice how well Rome Cable "stacks up" as the kind of supplier we think you'd like to have serving you:

1. Quality products. Only when your supplier consistently provides the *best* can you have real confidence in him. The quickest way to a customer's trust, we've found, is through an inspection routine almost unbelievably rigid, where the Inspection Department is completely independent of both Production and Sales. This procedure results in products you can depend on.

2. Broad selection. Your supplier's *versatility* often determines how ably he can serve you. You can look to Rome Cable for a balanced line of standard wires and cables as well as highly specialized types of cable—in either cop-

per or aluminum—plus a growing selection of conduit, cable troughs, and related equipment.

3. Rapid supply. How fast can you get the wire or cable you want? Are you sometimes forced into postponing wiring plans or accepting substitutes? No matter where your plants are, you can get prompt service from one of 450 Rome distributors, located coast to coast. These men carry a wide variety of different types and sizes of Rome wire and cable *in stock*—ready to go to work for you *today*.

4. Personalized service. How accessible are your supplier's salesmen when you really need them? Your Rome sales engineer is ready to work with you and your men at any time. Whether you need technical advice, emergency

shipments, price information, or special help of any kind, a Rome representative will immediately go to work for you.

5. Research. Are you getting the advantage of *new improvements* in the wire and cable you buy? To do so, you need a research-minded supplier like Rome—with a research program that has developed an impressive string of industry "firsts," and the production know-how to bring better wires and cables to you as soon as they are proved.

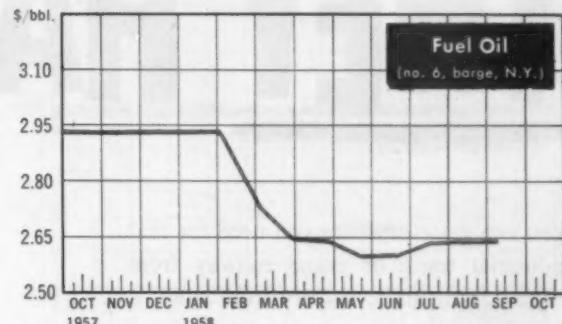
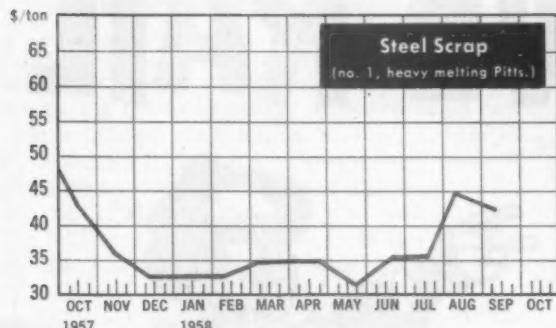
Specify Rome wires and cables for your next job. Contact your nearest Rome Cable representative for more information—or write to Department 156, Rome Cable Corporation, Rome, New York.

ROME CABLE
C O R P O R A T I O N

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Pulse of Business

Price Trends



to support American industry in order to have greater markets for his own company's products, but he's charged with the job of buying at the lowest possible price. And so he's got to watch the situation in Washington very closely, ready to move into the market at a moment's notice.

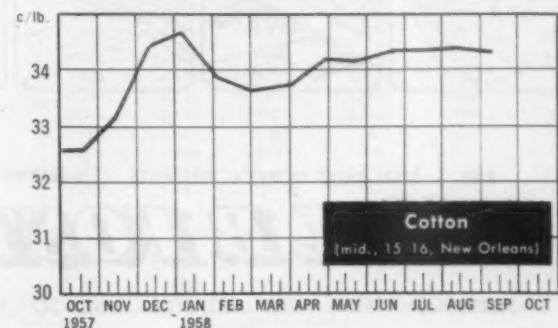
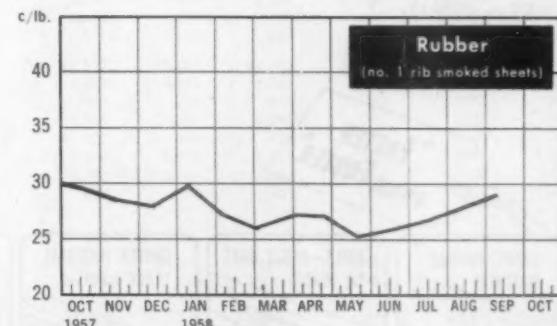
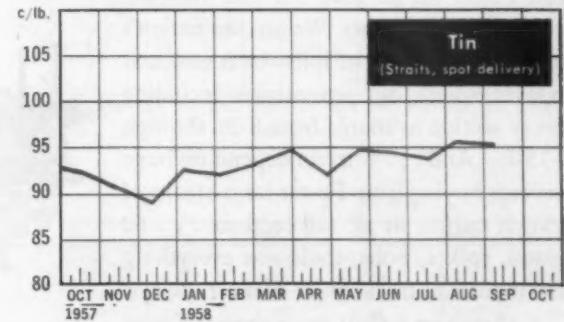
Zinc: Zinc suppliers are also demanding higher tariffs from the government. If these tariffs aren't raised soon, purchasing executives may see some more zinc production cuts and mine closings.

P.A.'s for galvanizers are stepping up their demand for Prime Western grade. Some die casters, too, preparing for the 1959 automobile models, are beginning to place orders.

Copper: Proposals that the government add to its strategic copper stockpile have been in the air for some time now, but no official word from Washington has come forward yet. At 26½ cents a pound, the producers' price for the red metal is still above the custom smelter quotation.

Tin: Action by the three consuming countries in the International Tin Agreement—Britain, Holland, and France—has helped strengthen the tin price that P.A.'s must pay. These nations agreed to curb imports of tin and tin alloys from Communist countries, thus negating a good deal of the effect that the recent Russian dumping moves have had.

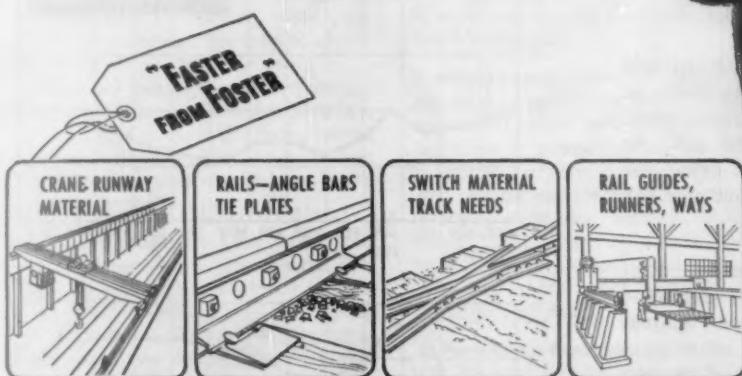
Fuel Oil: With the business climate improving, demand from P.A.'s for residual fuel oil is up. But this grade is still in plentiful supply, with a major part of our crude imports ending up as residuals.



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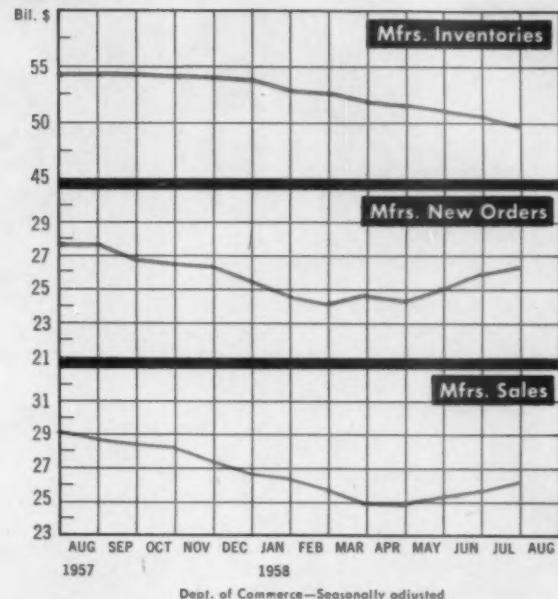
Pulse of Business

Sales, Inventories, Orders

- Orders and Sales Are Up; Inventory Reduction Slowed

LATEST REPORT ON MANUFACTURERS sales, new orders and inventories is highly encouraging. On a seasonally adjusted basis new orders totaled \$26.3 billion in July, a gain of \$500 million from the previous month. Most of the increase was in the nondurable goods industries. Sales during July also amounted to \$26.3 billion, up \$600 million from the previous month. The gain was split equally between the durable and nondurable goods industries.

Manufacturers' inventories continued the decline that started last September. However, the June-July inventory drop amounted to only \$400 million, compared with the much sharper \$700 million slash made between May and June. All signs seem to indicate that the inventory cutback trend is just about over.



Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

All Manufacturing Industries	June	July	April	May	June(r)	July(p)
Durable-goods Industries						
Primary metal	28,142	29,030	24,945	25,206	25,747	26,990
Fabricated metal	14,207	14,573	11,532	11,643	12,086	12,386
Machinery	2,289	2,447	1,657	1,656	1,854	1,888
Transportation equipment	1,492	1,605	1,302	1,331	1,397	1,484
Lumber and furniture	4,259	4,447	3,748	3,736	3,780	3,871
Stone, clay, and glass	3,241	3,251	2,466	2,536	2,610	2,562
Nondurable-goods Industries	1,076	957	791	807	852	833
Food and beverage	741	736	605	621	645	683
Tobacco	13,935	14,457	13,413	13,563	13,661	13,964
Textile	4,183	4,323	4,348	4,416	4,357	4,377
Paper	382	375	373	363	382	386
Chemical	1,063	1,089	1,016	994	1,025	1,046
Petroleum and coal	877	896	874	895	903	916
Rubber	1,894	2,008	1,832	1,875	1,899	1,998
	2,780	2,991	2,594	2,657	2,682	2,789
	458	514	439	428	445	n.a.

Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

All manufacturing industries	June	July	April	May	June(r)	July(p)
Durable-goods industries	53,853	54,093	51,496	50,896	50,246	49,812
Primary metal	31,438	31,696	29,424	28,981	28,528	28,303
Fabricated metal	4,207	4,245	4,362	4,277	4,169	4,121
Machinery	3,077	3,146	2,925	2,852	2,844	2,811
Transportation equipment	10,601	10,692	9,744	9,636	9,446	9,310
Lumber and furniture	7,919	8,038	6,863	6,721	6,595	6,006
Stone, clay, and glass	1,845	1,857	1,783	1,772	1,776	1,773
Non-durable goods industries	1,254	1,239	1,933	1,236	1,234	1,225
Food and beverage	22,415	22,397	22,062	21,915	21,718	21,509
Tobacco	4,882	4,804	4,765	4,759	4,761	4,715
Textile	2,064	2,038	1,896	1,880	1,859	1,840
Paper	2,612	2,642	2,606	2,584	2,572	2,561
Chemical	1,442	1,430	1,468	1,455	1,435	1,418
Petroleum and coal	3,692	3,728	3,839	3,796	3,747	3,711
Rubber	3,486	3,494	3,441	3,377	3,348	3,312
	1,027	1,045	1,047	1,020	986	n.a.

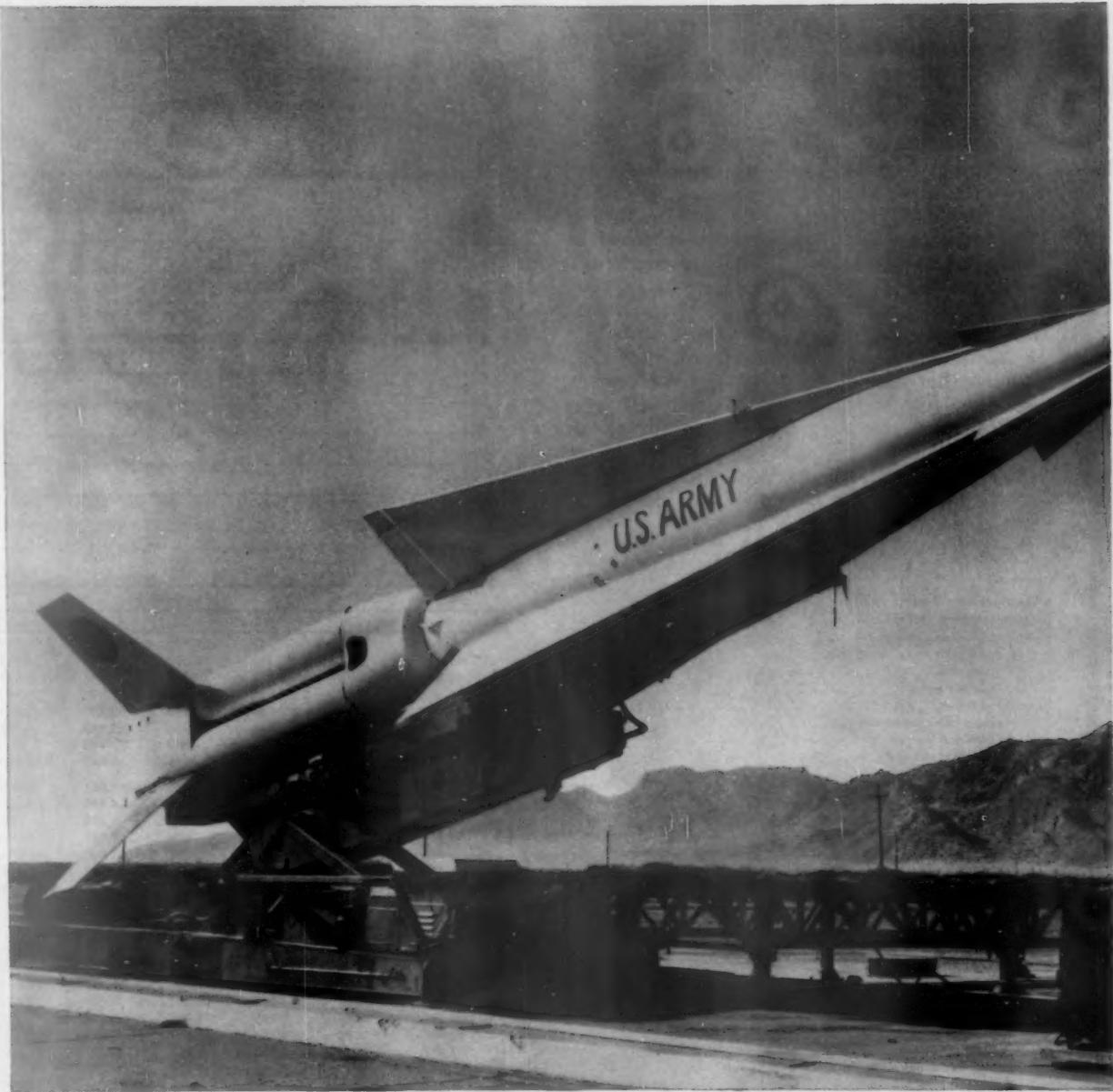
Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)

All manufacturing industries	June	July	April	May	June(r)	July(p)
Durable-goods industries	27,055	27,276	24,498	24,998	25,785	26,396
Nondurable-goods industries	13,249	13,005	10,833	11,423	12,245	12,386

(r) Revised.

(p) Preliminary.

When you buy from U. S. Steel



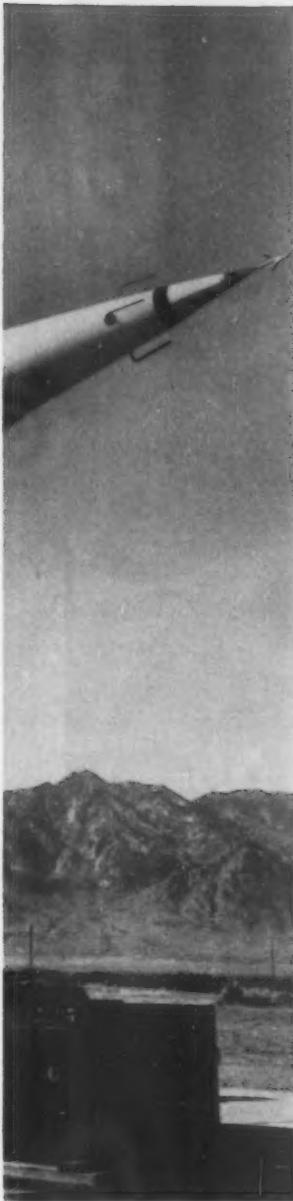
STEEL + PLUS IN ACTION: FACILITIES

Whether they are bullets or rockets, it takes steel to launch the missiles of defense. Shown here is the Douglas Aircraft produced Nike Hercules missile poised on a launcher fabricated at U. S. Steel's Consolidated Western Steel Division

where production lines for assembly of the launcher and ground handling gear are set up. USS MAN-TEN and USS TRI-TEN High Strength Steels and USS "T-1" Constructional Alloy Steel are used in construction of the launcher.

American Bridge • American Steel & Wire and Cyclone Fence • Columbia-Geneva Steel • Consolidated Western Steel • National Tube • Oil Well Supply
Tennessee Coal & Iron • United States Steel Homes • United States Steel Products • United States Steel Supply and Gerrard Steel Strapping
Universal Atlas Cement • United States Steel Export Company

you get **STEEL PLUS**



STEEL + PLUS IN ACTION: **RESEARCH**

To learn more about the effects of gases on the properties of steel, U. S. Steel researchers use this vacuum furnace to make experimental steels that are extremely low in gas content. Comparative tests are then made to evaluate any improvements obtained, and this information guides us in the development of new and better types of steel for many critical applications.

STEEL + PLUS IN ACTION: **TECHNICAL ASSISTANCE**

When the American Chain Division of American Chain & Cable Co. formed links from steel bars, links often had to be discarded due to irregularities in forming caused by variations in hardness. To stop the waste of time and steel, they asked us to supply a more ductile (and more expensive) annealed steel. USS Metallurgist Jim Culton looked into the problem and saw that a much less expensive, normalized steel would do the job just as well. The customer tried it and it proved to be the ideal material. Mr. Culton is shown here on the right talking with the manufacturer's plant superintendent, Mr. W. H. Paul.

STEEL + PLUS IN ACTION: **MARKETING ASSISTANCE**

Today, there is a new and more efficient method of handling milk, using refrigerated bulk milk tanks, trucks and dispensers made of stainless steel. Through farm and trade magazine advertising, nationwide television, promotional literature, direct mail and dealer sales aids, U. S. Steel told the bulk milk story to farmers, dairies, restaurants and schools throughout the country, creating countless prospects for manufacturers of this type of equipment. As in this case, USS Marketing Assistance often speeds the acceptance of new ideas and new products of vital concern to our customers.

USS, "T-I," Max-Ten and Tri-Ten are registered trademarks



United States Steel

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Savings through the back door

This is the time of the pinch, the profit squeeze. Call it what you will, keeping costs down, finding ways to make less money do more work is one of management's prime objectives today. Our transportation specialists have been able to help many com-

panies effect unexpected economies in transportation and at the same time speed up shipments. They can help you, too. Have someone in your organization check with Interstate System on your transportation needs. We're in the Yellow Pages.

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Washington Report

• FRB Moves to Control Speculation

FEDERAL RESERVE Board action hiking the rediscount rate from 1½% to 2% was the tip-off that the government would move quickly with money and credit restrictions to head off inflation.

Not that inflation is around the corner. In fact, the price picture at the wholesale level has been stable for 18 months. Federal Reserve thinking is that the higher rediscount rate will take some of the speculative fever out of the money markets. There is now no shortage of money and there is no inclination on the part of government for a return to a tight money policy—but the action makes it clear that money rates can be increased as quickly as they were dropped.

In the price outlook, wholesale prices are roughly at the same level as a year ago. Farm and food prices are higher, and industrial prices on the average are lower.

These figures do not reflect the increase in steel and aluminum prices, however, even with the price hikes, the industrial average will not change much.

Most explosive factor in the cost-price structure is wages. In several basic industries, the wage increases this year were higher than last year.

In steel, aluminum and meat packing, wages were increased several cents an hour more than last year. The increases were automatic under contracts which had been previously negotiated. The higher figures came as a result of cost-of-living adjustments.

Note: Cost of living adjustments in union wage contracts are based on the consumers price index prepared by the Bureau of Labor Statistics. The discrepancy between a fairly flat wholesale price level and a sharp increase in the cost of living, is explained by increases in food prices, which weight the cost of living heavily. Also price of services went up, and serv-

ices make up about a third of the cost of living index.

In some industries, wages did not increase this year as much as last year—but the average increase so far this year is only a fraction of a penny per hour less than last year's increases.

More Price Hikes

Obviously, with wholesale prices steady, the pressure on costs is coming from rising wages. So far industry has absorbed much of the higher cost. The steel and aluminum price increase came after earnings of companies within the industry indicated that the higher costs could not be absorbed.

This trend will be followed by other industries as they gain experience with higher labor costs—with higher overhead, utilities and services.

Federal Reserve Board action increasing rediscount rate cannot reverse the higher cost trend. Main purpose of the move is to calm down speculative fever that would bolster inflation forces.

• Easier Money For Small Business

SMALL BUSINESS Administration is getting underway in its program to help small business obtain long-term loans and risk capital.

New gimmick—enacted by Congress—would allow local investors to establish a Small Business Investment Corporation, which would be licensed by the Small Business Administration to make 10- and 20-year loans to small business, when these loans are amply covered by security—and also to make risk loans.

To establish an investment corporation, the investment group would have to put up \$150,000 of its own money, and the government would put up additional money. Purpose of the new arrangement is to help small business expand.

The definition of a small business as used by the Small Busi-

ANOTHER BIG
REASON WHY YOU
GET MORE with a

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NEW YORK



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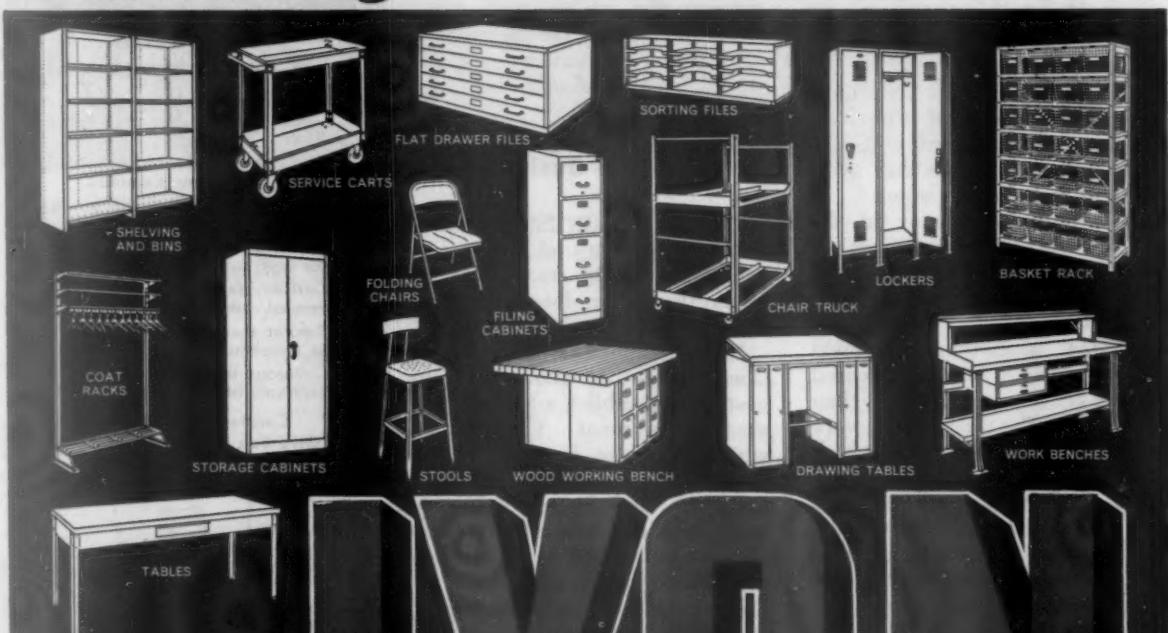
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and York, Pa.

Dealers in All Principal Cities

STEEL EQUIPMENT

Washington Report

ness Administration is any manufacturing enterprise employing less than 250 people. All manufacturing companies employing more than 1000 are considered big. Between the 250 and 1000 level, the question of small vs. big hinges on the industry.

Of special interest to purchasing agents in small companies is the availability of loan money to build up inventory, as well as general expansion plans.

● End of The Line For Renegotiation

RENEGOTIATION of military contracts was given a short time extension by Congress—but the thinking in Washington is that some better solution to policing government contracts should be devised.

When Congress reconvenes, the hunt for a better solution will start. In the meantime, the old arguments for and against renegotiation are being brought up—on the one hand, by industry spokesmen who want the act either killed or drastically changed—and on the other hand, by government officials who feel that even though unpopular, renegotiation is needed.

The Act was extended through June 30 of next year, which means that the law will have to come up early in the new session.

Arguments against renegotiation fall into two broad fields—one, that it takes the incentive out of government contracts and two, that it supplies a crutch to government buyers who can do a poor job of purchasing, with the certainty that their mistakes can be remedied by renegotiation.

In support of renegotiation, its backers offer only the one argument—that with public funds at stake, some protection against over-spending is needed.

It's almost certain that the Renegotiation Act will be greatly changed—and there is a strong possibility that it will be altogether killed, with some other curbs on company profits from military contracts substituted.—**A. N. Wecksler.**

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PAR ... Originated by TRS with the invaluable collaboration of some of industry's top production engineers who sought a major break-through in the automation of assembly operations to reduce costs.

PAR ... A name given by TRS to its Production Automated Riveting process ... continuously developed and perfected for 3 years. Proved successful in some of industry's most efficient plants. Now, TRS has sufficient engineers especially trained in the PAR process to serve all manufacturers.

PAR ... It makes riveting practically a new fastening method through efficiently integrated and automatic . . .

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3. SEQUENCING the operation of from 3 to 15 rivet setters which make all fastenings simultaneously or in any desired sequence.
4. CONTROL of setting force as required by parts thickness or material characteristics.
5. SENSING of improper conditions and stopping equipment to avoid injury to parts, equipment or operator.
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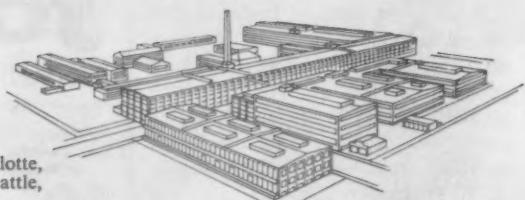
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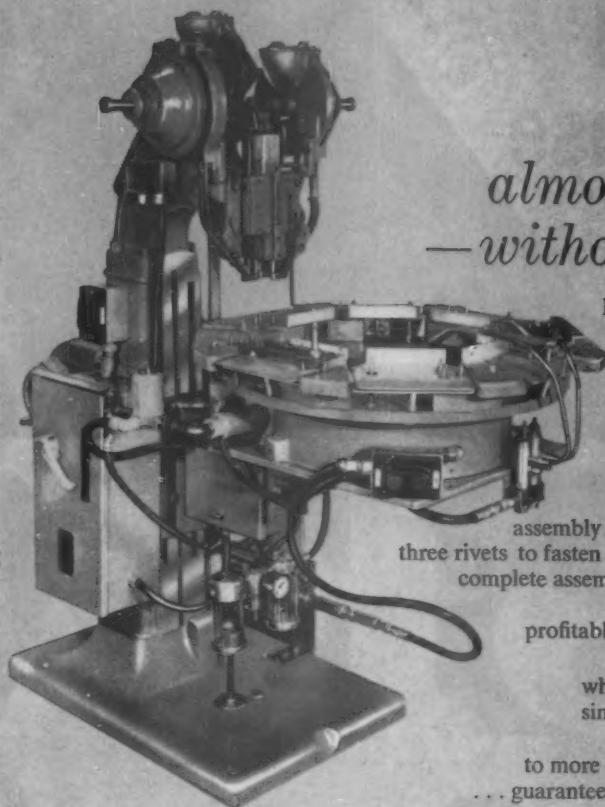
TUBULAR RIVET & STUD COMPANY

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FORD

*almost tripled production
—without adding to payroll*



Ford engineers wanted to step-up the production rate on a window gear and cam assembly. They called in TRS engineers.

Here is the remarkable automatic TRS Machine that resulted. Because center distances would not permit employment of a Multi-Head Riveter, a triple drive machine was adapted by TRS engineers. This eight dial station set-up receives a gear and cam assembly . . . greases it . . . receives a shaft and housing . . . sets three rivets to fasten shaft and housing to the gear and cam unit . . . ejects complete assembly. The machine does everything but load the parts.

Ford Motor Company know-how shows in the profitable solution . . . so does TRS ingenuity and experience.

You get the benefit of TRS "recognized ability" when you buy any TRS Riveting Machine . . . from the simplest, standard type to a complicated special design.

TRS offers more machines, to more exactly meet your need . . . will lease but likes to sell . . . guarantees performance and sticks by you with all-out service.

PAR . . . It's a TRS Process for very good reasons!

Obviously, there are two critical elements in the PAR Process. Essential is the special and extensive knowledge and experience needed to design an integrated system of standard or multi-head riveters, feeders, transfers and controls for the particular assembly involved. Equally important are superior knowledge and experience in the design, tooling and application of Multi-Head Riveters because these are usually employed.

TRS originated Multi-Head Riveters over three years ago and is the only experienced source of these machines. Further, because this TRS development opened up new possibilities for automating the riveting pro-

cess, TRS was able to begin three years ago to develop the special experience and application engineers required to fully meet the requirements of the PAR Process.

PAR . . . A New Opportunity to Reduce Direct Labor Charges

With this new help, hundreds of manufacturers . . . large and small . . . can effect substantial savings in direct labor charges, increase production rates, decrease parts spoilage and machine down-time. Look into it now if your product can be riveted, and especially if several rivets are involved.

The yearly amortized cost of the TRS Multi-Head Riveter equipment is low because it will not be obsoleted by changes in product design or production line.

To save more . . . To protect against equipment obsolescence . . . don't buy any Riveting Machines until you investigate the PAR Process



You're not required to use TRS Rivets but you'll be better off if you do

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There are no contracts or obligations involved in the PAR Process. However, it is true that the more automatic you make your riveting, the more important it is to use rivets that reduce operating troubles and machine down-time. And, we can give you good, factual reasons why TRS Tubular Rivets are more reliable in essential qualities and uniformity. Ask for the facts . . . judge for yourself.

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LIKE YOU we don't judge purchases on a cost per unit basis . . . but have an insistent regard for "potential purchase savings" in terms of end product, performance, and value. That licks problems for both of us.

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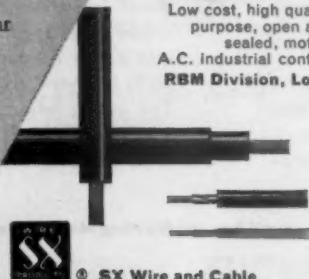
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A complete line of appliance wiring material, radio, television and electronic hook-up wire, 200° C high temperature Sil-X wire, automotive wires and cables, and flexible cords.
Wire and Cable Div., Fort Wayne, Indiana



CL Coiled Cords—Cord Sets

Plastic and rubber power supply cords. Terminations of all types (molded plastic and rubber). Complete line of Coiled Cords including HPN.
Cords Limited Division, DeKalb, Illinois



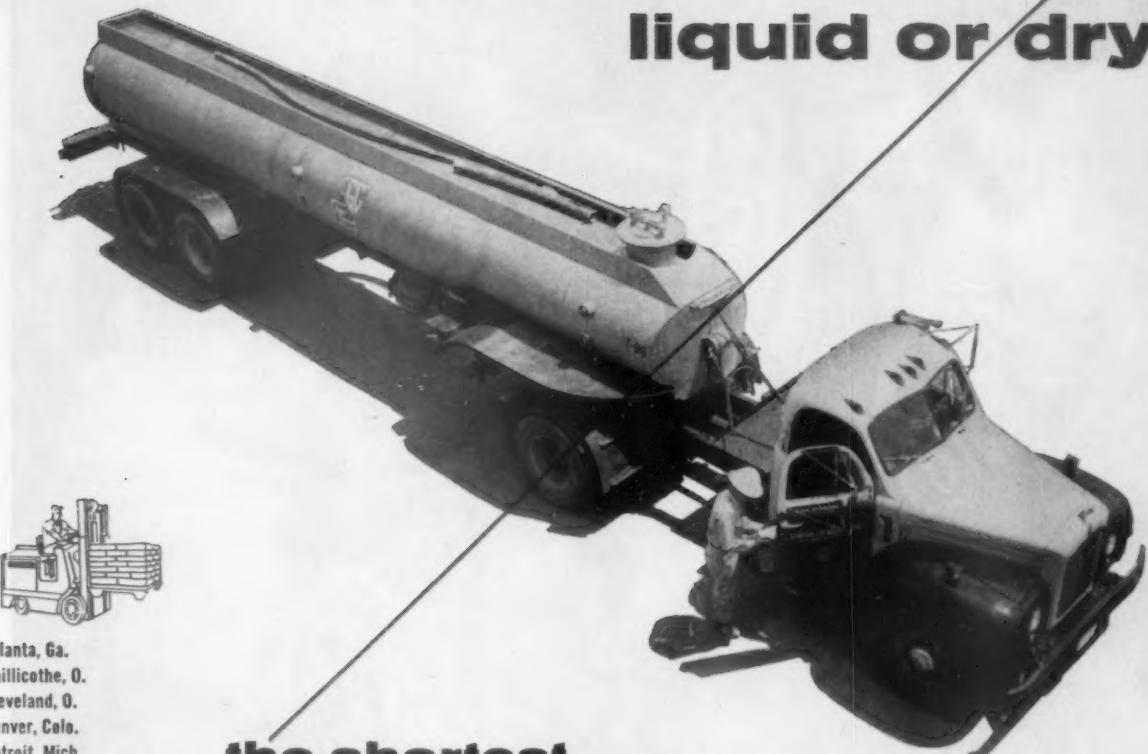
ESSEX WIRE CORPORATION

FORT WAYNE 6, INDIANA

For More Information Write No. 171 on Inquiry Card—Page 32

FOR ALUM

liquid or dry



**the shortest
distance between two points
is usually the distance
between our plant and you!**

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Check the list of General Chemical's dry or liquid alum producing locations at left. Chances are one is convenient and close to you. In addition to these plants, our chain of warehouses across the country makes stocks of dry aluminum sulfate readily available in every major center of commerce. Write or phone for information on how we can serve you.



Basic Chemicals for American Industry

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N.Y.

Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo • Charlotte • Chicago • Cleveland (Miss.) • Cleveland (Ohio) • Denver • Detroit • Houston • Jacksonville • Kalamazoo • Los Angeles • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • Portland (Ore.) • Providence • San Francisco • St. Louis • Seattle • Kennewick, Vancouver and Yakima (Wash.)

For More Information Write No. 172 on Inquiry Card—Page 32

SEPTEMBER 15, 1958



THE Toughness Champ ... LIGHTER BUT TOUGHER

OUR CLUPAK* MULTIWALL

Pound for pound, our new multiwalls—made of Kraftsman Clupak paper—can take abuse that breaks ordinary bags. Clupak multiwalls are lighter—but much tougher. Even with fewer plies than ordinary multiwalls, these new bags still perform better—and *more economically!*

Kraftsman Clupak paper gives these new bags their extra toughness. This paper has a patented, built-in "stretch" that stands up against rough handling in transport, storage and use.

Best of all, even with these important advantages, our new Clupak multiwalls *cost no more* than old fashioned, regular bags.

West Virginia's Clupak multiwalls are available now in these types: Pasted Open Mouth, Pasted Valve, Sewn Valve, Sewn Open Mouth and Stepped End.

All of them are lighter and tougher. Try them...on your next carload order, let us include a trial shipment of 5,000 of our Clupak multiwalls. Call or write:

MULTIWALL BAG DIVISION

WEST VIRGINIA PULP AND PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

PLANTS: TORRANCE, CALIF. • ST. LOUIS, MO. • NEW ORLEANS, LA. • WELLSBURG, W. VA.

*Clupak, Inc.'s trademark for stretchable paper.



For More Information Write No. 173 on Inquiry Card—Page 32

NATIONAL OIL SEAL LOGBOOK

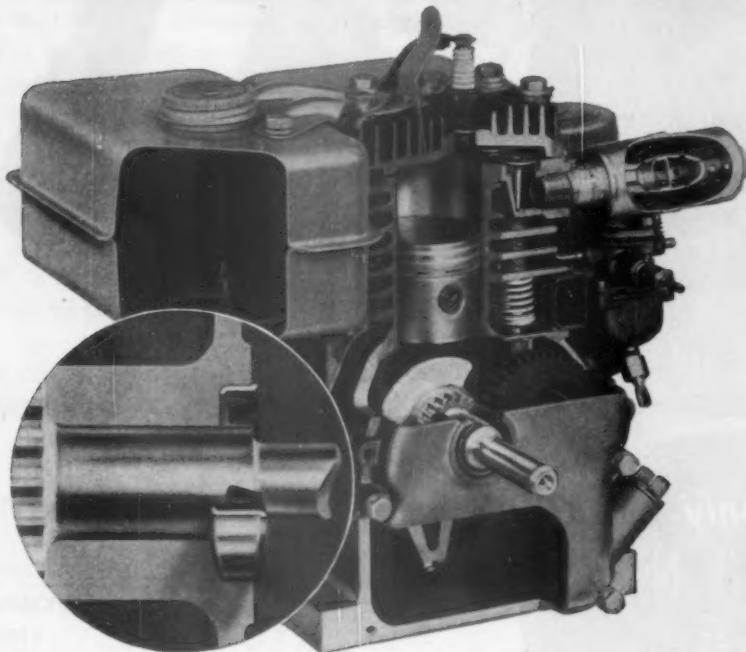


Figure 1.

Zero leakage oil sealing a "must" in Briggs & Stratton 2 3/4 hp engine

Some oil sealing applications can accept a small amount of lubricant leakage or "seepage." But not the Briggs & Stratton 8B Engine. Here, on a $\frac{5}{8}$ " crankshaft turning up to 3,600 RPM, light engine oil must be positively sealed in the crankcase at both front and rear bearing points. Oil temperature is 200° F with the engine at wide open throttle; and external temperatures may range from —30° to 125° F. Many Briggs & Stratton 8B engines operate only after long periods of inactivity; others are used continuously, a variable which makes the sealing problem even more demanding.

Satisfactory sealing and long, trouble-free service life is obtained by use of two special National Syntech® synthetic rubber seals (Fig. 1)—one at either sealing point. These precision made Syntechs have a minimum-contact sealing lip seating lightly but firmly on the shaft. The steel outer case is a precise press-fit for the bore, simplifying installation and preventing accidental working free of the seal.

National pioneered Syntech synthetic rubber seals; today offers a complete line of Syntech and leather seals plus convenient, competent oil seal engineering assistance. For data, for practical design help, call the National Seal engineer. He's under Oil Seals, in the Yellow Pages.

NATIONAL SEAL

Division, Federal-Mogul-Bower Bearings, Inc.
General Offices: Redwood City, California;
Plants: Van Wert, Ohio, Downey and Redwood City, California

SEPTEMBER 15, 1958

For More Information Write No. 174 on Inquiry Card—Page 32

Variations on basic oil seal designs



10,000-S

Many modifications of the basic National spring-loaded Syntech oil seal design are offered. For example, where external conditions require a felt dust baffle, National 10,000-S may be employed. Where dirt or grit conditions are severe, a National 20,000-S with leather or Syntech auxiliary sealing lip is often used.



230,000-S

For applications where shaft entry is made from the auxiliary side, a National 230,000-S seal with auxiliary leather washer-type sealing lip mounted in tandem is suggested.



70,000-S

For positive separation of low viscosity fluids at higher speeds and temperatures, National 70,000-S series seals are suggested. Basically two 50,000-S seals mounted with sealing lips opposed, this seal may be used at temperatures above 250° F and speeds in excess of 2,000 FPM.

Altogether, National offers over 2,500 basic types and sizes. There is one best seal for a given application. Your National engineer can help you obtain it.





Tough specifications? You bet.

That's why Maginniss Power Tool Company, leading producer of concrete vibrators, brought its tubing problems to Ohio Seamless. Our engineers recommended Ostuco NP-3 C1040 tubing for Hi-lectric Concrete Vibrator housings.

Here's what Maginniss says after using Ostuco NP-3 Tubing exclusively for 11 years, ". . . only Ostuco NP-3 Tubing meets our requirements for abrasion resistance and easy machinability. Its fine grain structure cuts

clean every time. Furthermore, we have never had a thread failure in the field traceable to tubing quality."

Every product, including yours, has materials or production process problems that are uniquely its own. If they involve tubing, Ohio Seamless has the answer. Just contact our nearest sales office, or the plant at *Shelby, Ohio—Birthplace of the Seamless Steel Tube Industry in America.*

AA-7477

SALES OFFICES: Birmingham • Charlotte • Chicago (Oak Park) • Cleveland
Dayton • Denver • Detroit (Ferndale) • Houston • Los Angeles (Lynwood)
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Seattle • Tulsa • Wichita

CANADA: Railway & Power Engr. Corp., Ltd.
EXPORT: Copperweld Steel International Company
225 Broadway
New York 7, New York



OHIO SEAMLESS TUBE DIVISION

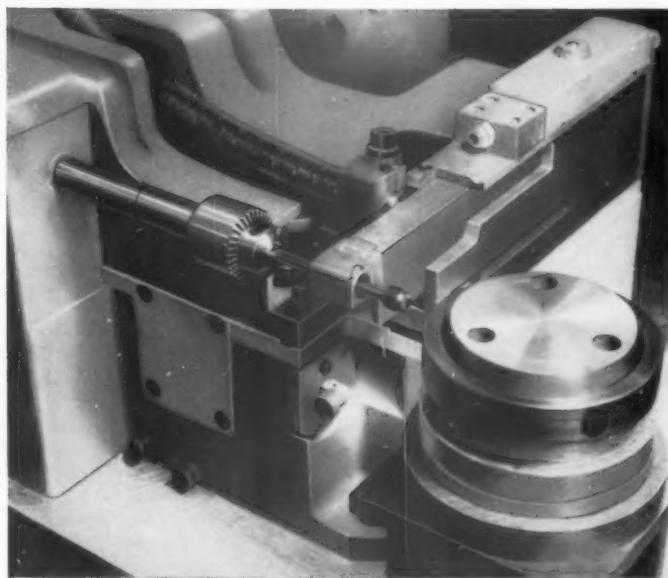
of Copperweld Steel Company • SHELBY, OHIO

Seamless and Electric Resistance Welded Steel Tubing • Fabricating and Forging

For More Information Write No. 175 on Inquiry Card—Page 32

High Torque UNBRAKO socket set screws

Up to 40% higher tightening torques keep them tight
—reduce service problems and maintenance costs



NEW SPS SETOMATIC® automates socket set screw driving, will install set screws with any type point to full recommended tightening torque at rates as high as 2500 an hour. It can be set up for fully automatic operation, semiautomatic operation or manual operation. One manufacturer realized a 50% drop in installation costs, a 100% increase in production of finished assemblies.

RECOMMENDED SOCKET SET SCREW TIGHTENING TORQUES

(in.-lb.)

Screw Size	Unbrako	Set Screw B	Set Screw C	Minimum Differential %
# 4	5	3.9	3.5	28
# 5	9	7.8	7.4	15
# 6	9	7.8	7.4	15
# 8	20	14.7	14.5	36
# 10	33	26.5	25	25
1/4	87	62	60	40
5/16	165	122	125	32
3/8	290	198	225	29
7/16	430	309	350	23
1/2	620	460	500	24
5/8	1225	1106	1060	11
3/4	2125	1540	1800	18
7/8	5000	3660	4600	9
1	7000	5025	6500	8

We also manufacture precision titanium fasteners / write for free booklet

SPS

Jenkintown • Pennsylvania

Standard Pressed Steel Co. • The Cleveland Cap Screw Co. •
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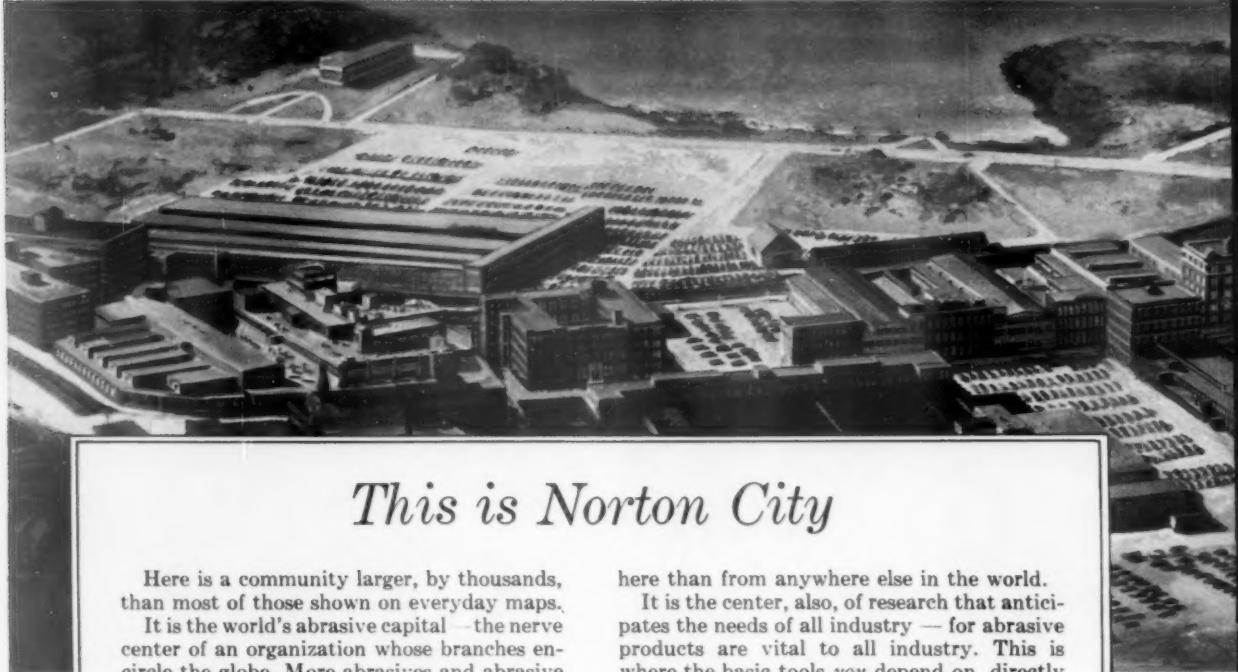
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SEPTEMBER 15, 1958

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hiR
High Reliability factor

Research at SPS is realistic, for it faces the fact that industry is always seeking structural and mechanical components with ever increasing standards of predictable performance. By installing SPS high reliability fasteners in your assemblies, you increase overall product reliability.

"High Reliability" is a booklet just published by SPS. Write for your copy today.



This is Norton City

Here is a community larger, by thousands, than most of those shown on everyday maps.

It is the world's abrasive capital — the nerve center of an organization whose branches encircle the globe. More abrasives and abrasive products are shipped from the many plants

here than from anywhere else in the world.

It is the center, also, of research that anticipates the needs of all industry — for abrasive products are vital to all industry. This is where the basic tools you depend on, directly or indirectly, are made. *This is Norton City.*

Are there any bargains

There certainly are. But you can't evaluate a grinding wheel by its price alone. The only genuine bargains are wheels that bring steady economy to your grinding. You get them from Norton, with these advantages:

Top quality and top performance, resulting from Norton pioneering in research, engineering and manufacturing.

No delays in your production due to wheel variations, because Norton supplies you with precision-duplicated wheels . . . from complete warehouse and distributor stocks near you . . . meeting standard or special requirements with fast deliveries, regular or emergency.

Lowest cost per piece ground, aided by the product application experience of your Norton Abrasive Engineer . . . who is always ready to assist your production men in selecting exactly the right wheels you need to cut grinding costs.

Norton grinding wheels are your real, money-saving bargains — bringing you the "Touch of Gold" that increases product value and production profits.

NORTON COMPANY, General Offices, Worcester 6, Massachusetts. *Plants and distributors around the world.*



First in abrasives. Abrasives — in particular, Norton grinding wheels and Behr-Manning coated abrasives — are the principal Norton products. Included are all types of abrasives — diamonds among them — the most advanced bonding processes, and every wheel shape and size required by industry.

Making better products...



Main Office and Plant at Worcester, Massachusetts

in abrasives?



Norton Installations In The
U. S. and Canada

★ Plants ● Warehouses
▲ District Offices



Processes. The first continuous tunnel kiln for processing grinding wheels was pioneered by Norton 30 years ago. This one is a recent Norton development. Used in the firing of grinding wheels, it provides closeness of quality control never before possible. Modern electronics guard quality continuously.

NORTON
ABRASIVES

From coast to coast. Besides the Norton plants and warehouses and district offices indicated here, there is a Norton distributor convenient to every manufacturer in the U. S. A. Norton warehouses are located in important industrial centers. Abroad, Norton has plants in England, Northern Ireland, France, Germany, Italy, Australia, South Africa, Argentina and Brazil.

to make your products better

"Under Way On Nuclear Power"

Aug. 8, 1958

*Congratulations
to the Nautilus,
the world's first
sub to chart a
passage under the
North Pole.*

January 17, 1955

As she blinked this terse message, the USS Nautilus cast off and steamed to sea leaving an old era of oceanic travel in its wake.

This is the first nuclear-powered, steam-turbine-driven submarine ever to be built. With the eyes of the world watching, it was a project with no margin for failure. Exhaustive sea trials which tested every feature of her equipment proved that the only acceptable result—success—had been completely realized.

We take pride in Walworth's share in this momentous achievement. For, from the days when the Nautilus was still on the drawing board to the last stage of construction, Walworth engineers worked directly with the Electric Boat Division of the General Dynamics Corporation—helping with the myriad of piping problems this new concept of transportation posed. Now the Nautilus prepares to join the fleet with Walworth Valves and Fittings, both standard and special items, installed.

We are glad to be aboard.

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Manufacturers since 1842

valves . . . pipe fittings . . . pipe wrenches

750 Third Avenue, New York 17, N. Y.

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THROUGHOUT THE WORLD



For More Information Write No. 178 on Inquiry Card—Page 32

**Bimetal and Plain
Bushings offer
substantial economies**

Rolled split plain bronze, steel or aluminum; or steel lined with bronze, babbitt, medium or heavy-duty copper-alloy, or extra heavy-duty aluminum alloy. Many design variations possible, plus volume production economies.



**These alloy linings
meet 95% of engine
bearing needs**

Experience shows a steel back, lined with tin- or lead-base babbitt, medium- or heavy-duty copper-alloy or extra heavy-duty aluminum alloy, meets most performance requirements.



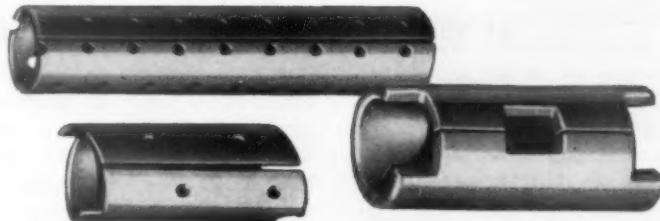
**Precision Thrust
Washers in Bronze or
Bronze on Steel**

Cold rolled for heavy duty. Steel faced with copper-alloy on one or both faces. Nibs, lugs, coined oil grooves. Flat, spherical or special shapes. From 1" to 6" O.D.



**Economical Spacer
Tubes for Hundreds
of Applications**

Money-saving substitute for iron pipe, tubing or machined parts. Delivered ready for assembly, to exact dimensions—or can be brazed to other components.



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STRIP STEEL DIVISION

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CABLE: PETESTEELS

Union, New Jersey

Mr. Specialty Steel Buyer
Everytown, U. S. A.

Dear Sir:

It is with pleasure that we of Peterson Steels announce the formation of the Strip Steel Division, with headquarters at Melrose Park, Illinois.

The new division will promote the sale of razor blade steel, hardened and tempered spring steel, and other cold rolled high carbon steels now being rolled at the Hellefors Works, Sweden, and at the Eberle Works, in Augsburg, Germany.

Cordially,

PETERSON STEELS, INC.

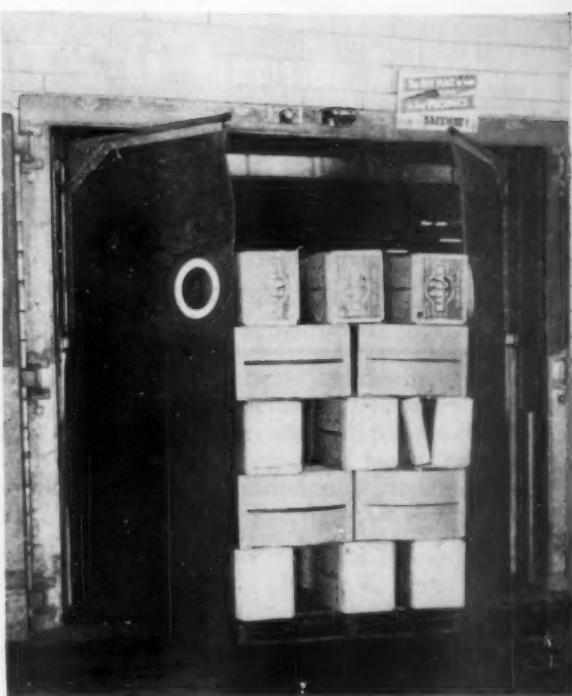
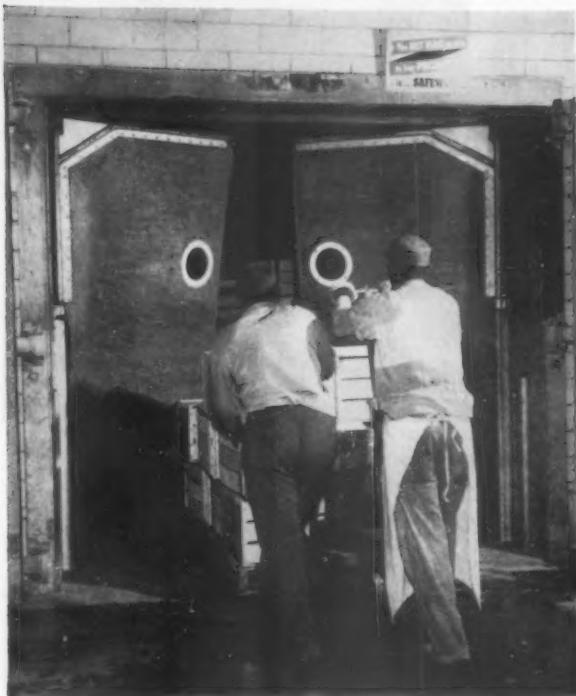
R. G. Willaman

R. G. Willaman

President

UNION, NEW JERSEY DETROIT, MICHIGAN MELROSE PARK, ILLINOIS WETHERSFIELD, CONNECTICUT

For More Information Write No. 180 on Inquiry Card—Page 32



These doors were supplied by the Jamison Cold Storage Door Co.

Flexible "bump-open" door of Du Pont neoprene withstands constant battering in warehouse

This set of neoprene flexible doors was installed at the Safeway Distribution Center in Landover, Maryland, when heavy traffic on the loading dock proved too much for the rigid swinging doors previously used. The refrigerated produce warehouse must be closed to maintain a 52° F. temperature, and Safeway found that the rigid doors in this heavy-traffic area were fre-

quently knocked off their hinges by hand and power trucks.

Constant battering by vehicles and crates of produce has left only superficial scratches on the neoprene doors after 21 months and they move so readily that they won't damage fragile produce. In winter temperatures as low as zero the doors remain flexible. Oil and grease haven't damaged them and there's no sign of cracking or other deterioration.

Other advantages of neoprene synthetic rubber are important in maintenance products: it resists sunlight and weather, many chemicals, ozone and cutting. It won't support combustion. Neoprene insures long, trouble-free service for many products. Your rubber goods supplier can tell you more about industrial uses of neoprene and HYPALON®, a newer synthetic rubber. For more information just send the coupon.

ELASTOMERS IN ACTION

HYPALON® • NEOPRENE
VITON
TRADEMARK



Better Things for Better Living
... through Chemistry

- I am particularly interested in _____
 Send me a free copy of *The Du Pont Elastomers* (a review of the properties of neoprene and HYPALON).
 Add my name to the free mailing list of the *Elastomers Notebook* (contains articles based on uses of Du Pont elastomers in industry).

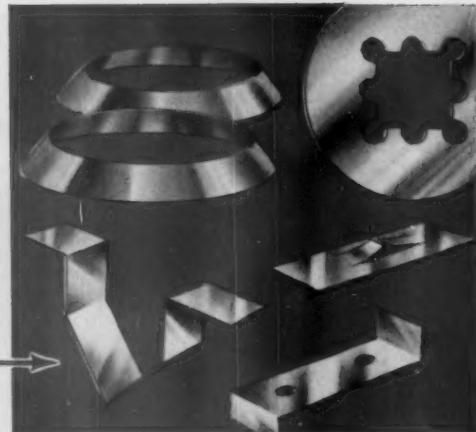
E. I. du Pont de Nemours & Co. (Inc.)
Elastomer Chemicals Dept. PC-9
Wilmington 98, Delaware

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Firm _____
Address _____
City _____ State _____



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If you fabricate
aluminum stamped parts
like these...



And you want a ready
source of coiled
aluminum sheet like this...



Get fast delivery,
complete stocks and
cutting service from your

REYNOLDS DISTRIBUTOR

Look under "Aluminum" in the classified phone book for your Reynolds Distributor

Reynolds Metals Company, Richmond 18, Virginia

The Finest Products
Made with Aluminum

are made with

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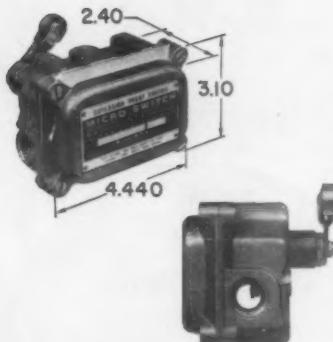
and the finest warehouse service
is provided by your

REYNOLDS DISTRIBUTOR



MICRO SWITCH Precision Switches

Compact high capacity UL listed explosion-proof switches



There is a wide variety of explosion-proof switches in the MICRO SWITCH precision switch line to help you boost productivity of equipment

Here are a few examples of the many variations in mechanical and electrical characteristics, housings and actuators which are available in MICRO SWITCH explosion-proof switches. All feature rugged construction in sturdy housings, with a choice of mounting positions. Information on these precision switches is available from the MICRO SWITCH branch office nearest you.

Listed by Underwriters' Laboratories for use in hazardous atmospheres Class 1, Group C and D; Class 2, Groups E, F and G.

NEW

"EX1" SERIES

Series "EX1" switches have a conduit opening at both ends of the housing. This permits through wiring, which saves costs and space and improves appearance of the installation. Series "EX1" switches are available with four types of basic switches, with variations in electrical ratings, size of conduit openings and circuit arrangements. The switch illustrated has two $\frac{1}{2}$ -inch 14NPT conduit openings; capacity is 15 amps. 125, 250, 460 vac; $\frac{1}{2}$ amp. 125 vdc; $\frac{1}{4}$ amp. 250 vdc. Contact arrangement is SPDT. Request Data Sheet No. 129.



"ML-E1" SERIES

The "ML-E1" series of explosion-proof limit switches meets a wide range of requirements. For example, there are two-circuit double-throw double-break switches with a rating of 10 amps. 120, 240, 480 or 600 vac; 0.8 amp. 115 vdc; 0.4 amp. 230 vdc. The roller plunger actuator is for cam or slide operation. Sealed head can be rotated 90°. Wide choice of other actuators. Send for Catalog 83.

MICRO SWITCH . . . FREEPORT, ILL.
A division of Honeywell
*In Canada: Honeywell Controls, Ltd.,
Toronto 17, Ontario*

*Look for the name of MICRO SWITCH
Authorized Distributors
in the Yellow Pages*



"EX" SERIES, "AR" TYPE

Series "EX" switches have single conduit openings. They are available in a complete selection of actuators. There are 27 variations of the "AR" type alone, representing a wide choice of operating characteristics, electrical capacities and contact arrangements. This "EX" series switch is designed for cam or slide operation. Actuator is operated by clock-wise rotation, and it is adjustable through 360°. The roller is of non-sparking silicon bronze. Send for Catalog 83.



"ML-E1" SERIES

This series "ML-E1" switch has a roller lever actuator which can be positively locked at intervals of approximately 0.4° (870 positions). The actuator can also be adjusted to actuate the switch in the clockwise direction only, the counter-clockwise direction only, or in both directions. The head assembly can be faced in any of four directions and the roller arm may be reversed on the head. Send for Catalog 83.

The two-word name MICRO SWITCH is not a generic term. It is the name of a division of Honeywell.



Honeywell
MICRO SWITCH PRECISION SWITCHES



You can always depend on prompt delivery of U.S.I. alcohol from one of these warehouse points

When U.S.I. is your supplier of alcohol, delivery is always prompt—for this reason: U.S.I. maintains a nationwide network of bonded warehouses. Chances are, one of these warehouses is within less than a day's delivery of your plant.

In addition, long experience in supplying alcohol enables U.S.I. to offer you helpful assistance in handling alcohol paperwork—permits and records. U.S.I. technical assistance, too, is based on long experience in all applications for alcohol.

With dependable U.S.I. delivery and service you can avoid fluctuations in your alcohol stock . . . tie-up of valuable storage space . . . needless complication of inventory records . . . the hazard of being caught short

when you have a major emergency need.

U.S.I., America's oldest and most experienced producer of hospital and industrial alcohol, has been serving industry for more than half a century.

Specify U.S.I. alcohol . . . high in purity . . . prompt in delivery.



INDUSTRIAL CHEMICALS CO.

Division of National Distillers and Chemical Corp.

99 Park Ave., New York 16, N.Y.

Branches in principal cities

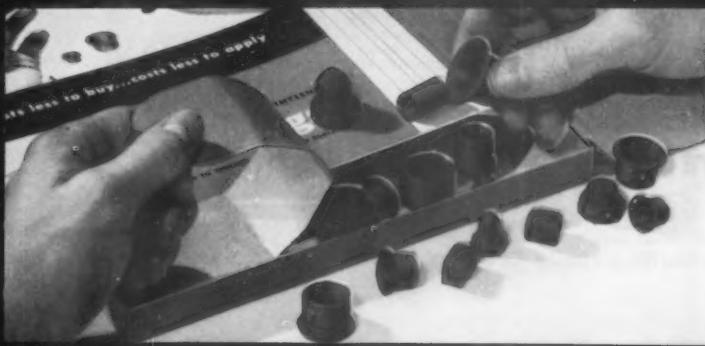


chances are you'll find Capplugs ideal for your closure needs, too . . . they're made of tough, flexible Polyethylene . . . easy to apply and a cinch to remove . . . won't chip, break, shred or collapse . . . over 500 sizes in a dozen different styles now on the shelf.

Capplugs

QUICK, SLICK PROTECTION FOR PRODUCTS
IN PROCESS, STORAGE AND TRANSIT

GET THIS KIT FULL OF SAMPLES IN EXCHANGE FOR THE COUPON ATTACHED



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Mail a free assortment of Capplugs, literature and prices to us, without obligation.

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FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



Zinc coating holds tight on sheets drawn $4\frac{1}{2}$ in. deep

Here you see a part of the housing of a room air-cooler. The cooler is of the evaporative type, and the ever-present moisture makes rust a continual threat. For this reason the manufacturer decided to make the housings of rust-resisting galvanized sheet steel, with an enamel finish baked on. But the whole idea depended on the ability of galvanized steel to be deep-drawn without faulting the zinc coating.

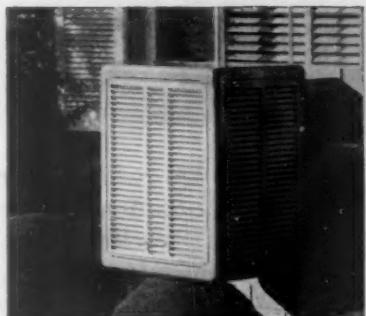
RIGHT DUCTILITY AND STIFFNESS

A trial showed that Bethcon galvanized sheets would successfully take the draws, some of which were $4\frac{1}{2}$ in. at one blow. The reason for this success lies in the fact that Bethcon is galvanized by our unique continuous process,

a process which does two wonderful things to a Bethcon sheet:

1. It bonds the zinc so tightly to the sheet that the zinc won't flake off even in severe forming operations.
2. It imparts to the sheet an ideal blending of ductility and stiffness, so that deep-draws can be made without sacrificing rigidity in the product.

Industry is discovering all sorts of interesting ways in which Bethcon continuously galvanized sheets can help make products better, more economically. Where you need the strength of steel, coated for corrosion-resistance, you're likely to find Bethcon a new answer to your problem. Why not discuss it with a Bethlehem representative?



This cooler is in wide use for homes, trailers, industrial and public buildings. For maximum rust-protection, unit is cased in Bethcon galvanized sheet steel, primed with zinc-chromate and finished in baked enamel.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation*



BETHLEHEM STEEL

AVAILABLE NOW

from selected distributors

NICHOLSON HACKSAW AND BAND SAW BLADES

Nicholson Hacksaw and Band Saw Blades and Ground Flat Stock are now available through selected distributors.

The new full line of Nicholson Hacksaw Blades includes standard steel hand blades, and hand and power hacksaw blades in high-speed steel.

Our Band Saw Blades include a complete range of blades for general and specialized cutting. Every blade with the Nicholson trademark is designed and tested for performance perfection. You can rely on them for best results at lowest cost—just as you have always depended on files bearing our trademarks.

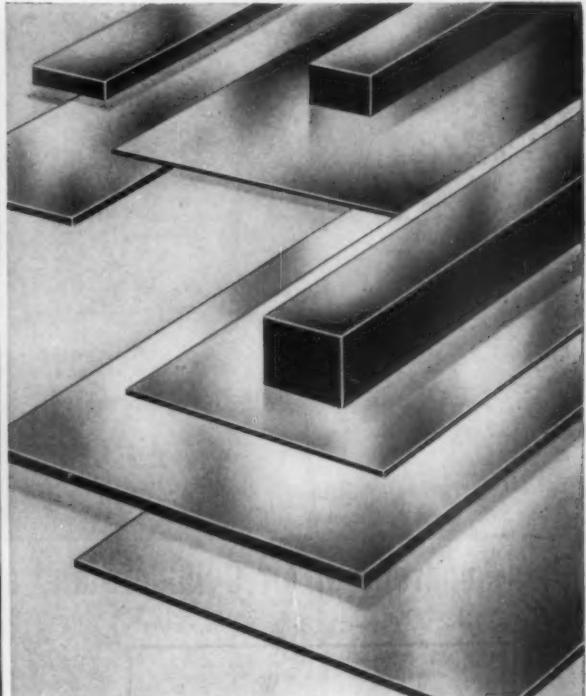


NICHOLSON GROUND FLAT STOCK

Nicholson precision-ground Flat Stock is available in over 1000 sizes of carefully annealed, expertly machined Stock in attractive, protective packages. Every Nicholson Flat Stock package bears the steel analysis and heat-treating procedure for its contents.

*Ask your Industrial Distributor
about these new Nicholson lines*

* Industrial Distributors provide the finest goods and services in the least possible time. Our products are sold exclusively through them.



NICHOLSON FILE COMPANY, PROVIDENCE, R.I.

(In Canada: Nicholson File Company of Canada Ltd., Port Hope, Ontario)

For More Information Write No. 187 on Inquiry Card—Page 32

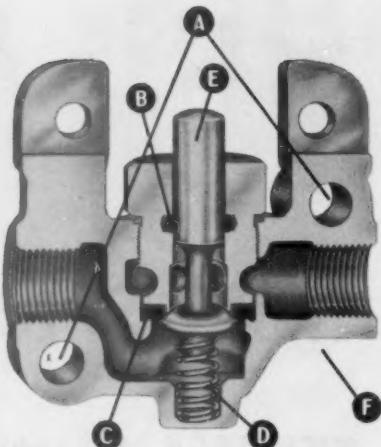
SEPTEMBER 15, 1958

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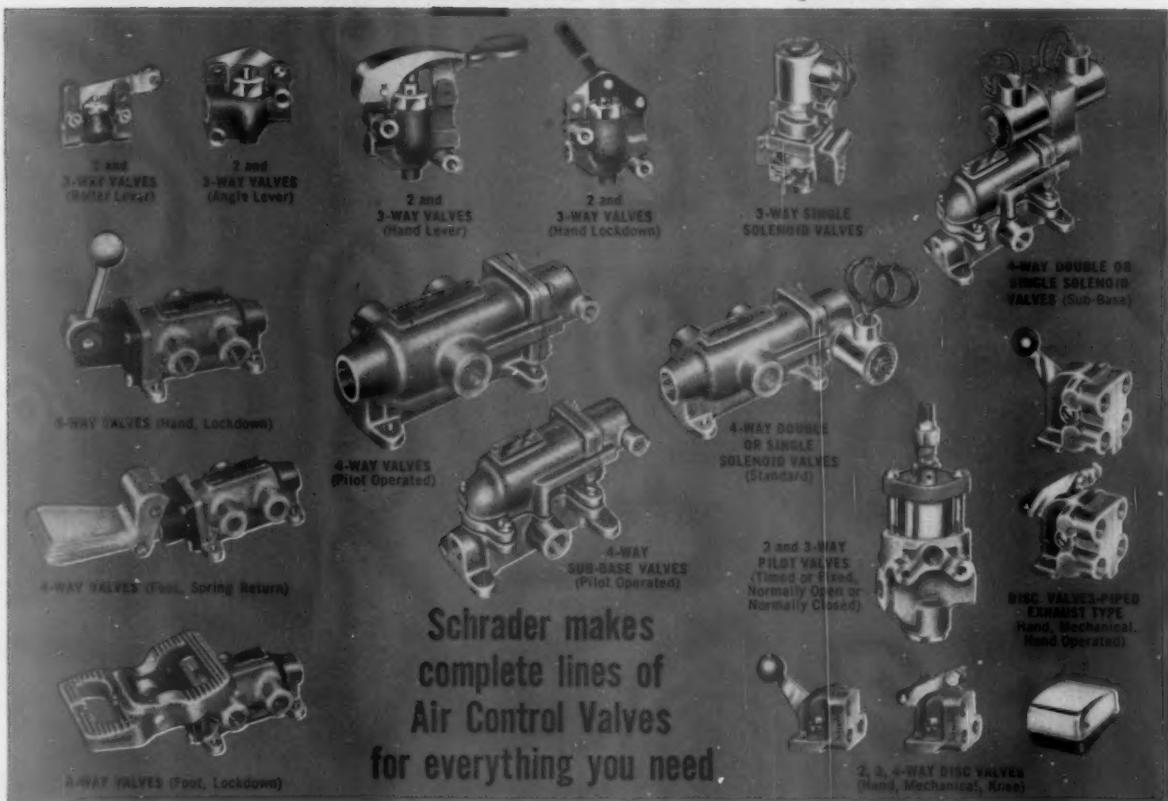
TYPICAL SCHRADER SIMPLIFIED VALVE DESIGN

... another reason why your air system installations will perform best.

- A**—Mounting holes always conveniently located.
- B**—"O" rings used for surest airtight seal.
- C**—Oil-resistant synthetic rubber used in washers for positive leakproof seat.
- D**—Stainless steel springs: rust resistance, longest service life.
- E**—Sturdy plated plungers, quick acting, smooth-operating.
- F**—All parts designed for greatest air flow, longest life and simplicity of replacement and interchangeability.



INSIDE EVERY SCHRADER VALVE YOU CAN SEE SCHRADER QUALITY



Schrader makes
complete lines of
Air Control Valves
for everything you need.

Plus hundreds of Air Cylinders and accessories for every need

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Send for Schrader Catalog
on full line of air control products.

A. SCHRADER'S SON • Division of Scovill Manufacturing Co., Inc.
473 Vanderbilt Avenue, Brooklyn 38, N. Y.

QUALITY AIR CONTROL PRODUCTS

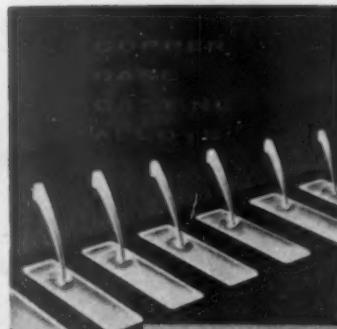
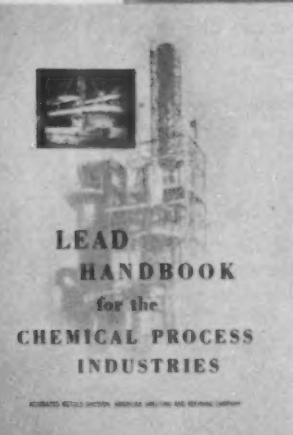
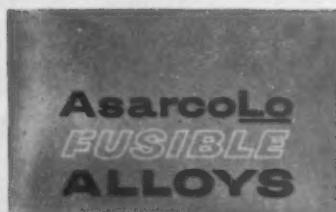


Contact one dependable source for non-ferrous supplies...FEDERATED.

You have the most comprehensive line of available non-ferrous materials to select from. Through the widest variety of products, the most stringent production controls, and the most experienced and extensive application assistance—Federated is your supply headquarters for: Non-ferrous casting metals, aluminum, copper base, zinc base; Solders, Babbitt metals; Lead products; Plating anodes and chemicals; Low melting alloys; Galvanic anodes; Type metals; Zinc dust. Federated Metals Division, 120 Broadway, New York 5. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

FEDERATED METALS DIVISION OF

**ASA
RCO**
AMERICAN SMELTING AND REFINING COMPANY



Information For Your Catalog Files

AIR VALVES

A 20-page digest catalog is designed as a quick valve reference. Use of air power in small industries is covered. To facilitate selection, valves are listed functionally rather than serially.

Ross Operating Valve Co.

Write No. 1 on Inquiry Card—Page 32

AIRCRAFT, MISSILE COMPONENTS

Facilities for the development and manufacturing of aircraft and missile components are described in an 80-page illustrated catalog. Included are pneumatic controls, duct supports, couplings, etc.

Surface Combustion Corp.

Write No. 2 on Inquiry Card—Page 32

AUTOMATIC PROGRAMMING

Booklet U1350 explains how to translate automatically the flow chart of a systems expert into the language of the Univac 11 data-automation system. Advantages from use of system are detailed.

Sperry Rand Corp.

Write No. 3 on Inquiry Card—Page 32

BELTING

How to choose, inspect and order proper types of conveyor belting is the subject of a 2-color, 16-page "check-up" brochure. Type needed for material conveyed can be quickly located.

Hamilton Rubber Mfg. Co.

Write No. 4 on Inquiry Card—Page 32

CASTINGS

An illustrated booklet deals with a new process for making precision castings. They are produced by a new type of ceramic mold. Castings are thereby free of sand or glass inclusions.

Newark Die Hobbing & Casting Co.

Write No. 5 on Inquiry Card—Page 32

CENTRIFUGAL MACHINERY

Information on a full line of centrifugal machinery is contained in a 16-page illustrated brochure. Included are oil extractors, dryers, washers, enamels, impregnators, breakers, etc.

The Leon J. Barrett Co.

Write No. 6 on Inquiry Card—Page 32

COILING, BENDING

Special fabricating and bending and coiling of pipe and tubing are covered in an 8-page catalog. Bending limits and sizes in both ferrous and non-ferrous metals are listed.

Swan Engineering Co.

Write No. 7 on Inquiry Card—Page 32

COPYING PROCESS

The diazotype copying process is described in a 12-page illustrated booklet. The method of using reproducible copies and removing information from originals and copies is explained.

The Charles Bruning Co., Inc.

Write No. 8 on Inquiry Card—Page 32

FITTINGS (CONDUIT)

An easy-to-read 28-page catalog describes and illustrates an entire line of conduit fittings and accessories. Included are new pressure-cast electric metallic tubing fittings.

Conduit Fittings Corp.

Write No. 9 on Inquiry Card—Page 32

INDUSTRIAL MAINTENANCE

Punched for standard 3-hole binder, a 44-page catalog deals with industrial maintenance specialties and plant supplies. Helpful engineering data and complete price supplement are included.

The A. E. Borden Co., Inc.

Write No. 10 on Inquiry Card—Page 32

IRON POWDER

Brochure No. 112 devotes 8 pages to study of sponge iron powder as a raw material for the powder metallurgy industry. Results of tests made on various properties are given in graph form.

Hoeganaes Sponge Iron Corp.

Write No. 11 on Inquiry Card—Page 32

LIGHT BULBS

How to judge a light bulb is explained in an 8-page booklet. Pamphlet contains numerous facts about light bulb life, light output and cost of light. Hints are given on proper bulb selection.

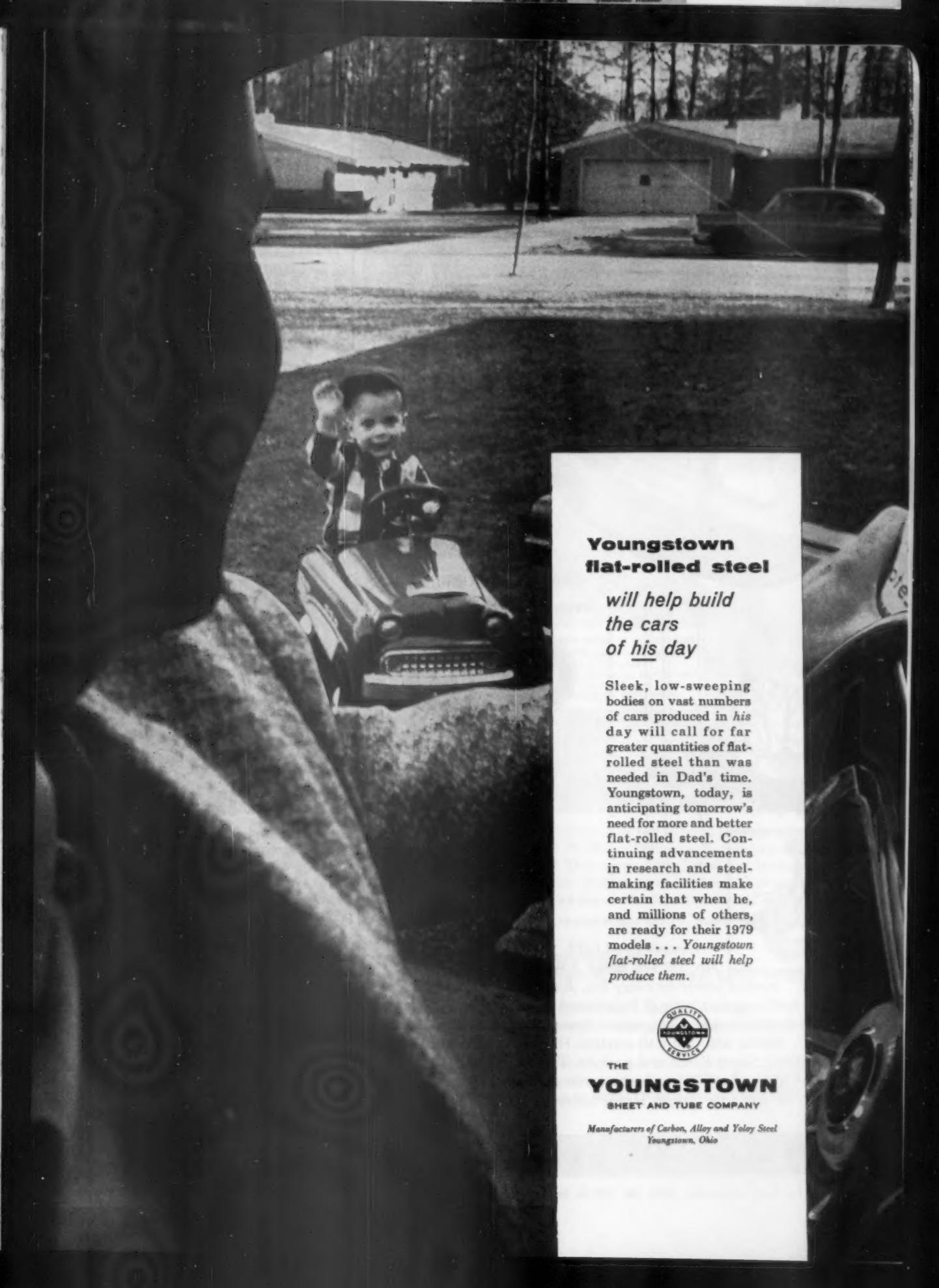
Westinghouse Electric Corp.

Write No. 12 on Inquiry Card—Page 32

For More Information Write No. 190

on Inquiry Card—Page 32→

PURCHASING



**Youngstown
flat-rolled steel**

*will help build
the cars
of his day*

Sleek, low-sweeping bodies on vast numbers of cars produced in *his* day will call for far greater quantities of flat-rolled steel than was needed in Dad's time. Youngstown, today, is anticipating tomorrow's need for more and better flat-rolled steel. Continuing advancements in research and steel-making facilities make certain that when he, and millions of others, are ready for their 1979 models . . . Youngstown flat-rolled steel will help produce them.



THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

*Manufacturers of Carbon, Alloy and Tool Steel
Youngstown, Ohio*

New extra-fast cutting

RIDGID No. 315

Tubing Cutter

Capacity
¾" to 1½"

3-Wheel Design

gives quick, clean cuts
even in tightest places!



Compact and light, yet strong, this new No. 315 RIDGID 3-Wheel Tubing Cutter is extra handy on every job. Just what you need for that hard-to-get-at tubing. No skinned knuckles... no slow hack saw. Cuts copper, brass, aluminum, steel tubing and thin-wall conduit. Handy RIDGID fold-in reamer protects hands and pockets. Try the new RIDGID No. 315 and you'll wonder how you got along without it. Ask your Supply House today.

The Ridge Tool Company • Elyria, Ohio, U. S. A.

For More Information Write No. 191 on Inquiry Card—Page 32

Catalog Files

COUPLINGS

Quick-connect, quick-disconnect couplings are the subject of a general catalog. Five basic types are covered. Construction details of couplings are shown by numerous cutaway drawings.

Snap-Tite, Inc.

Write No. 13 on Inquiry Card—Page 32

FORGINGS

A fully illustrated brochure (16 pp.) describes production of precision missile forgings. Importance of inspection departments is highlighted. Data on ordering procedures are supplied

The Billings & Spencer Co.

Write No. 14 on Inquiry Card—Page 32

LIQUID LEVEL CONTROL

A system of liquid level control which operates without floats or moving parts forms the subject of a 20-page folder. It describes liquid level relays, electrodes, signals and alternators.

B/W Controller Corp.

Write No. 15 on Inquiry Card—Page 32

MEASURING INSTRUMENTS

A 28 page catalog lists many new measuring instruments. Included among products described are measuring microscopes, cathetometers and optical benches. Accessories are detailed.

The Ealing Corp.

Write No. 16 on Inquiry Card—Page 32

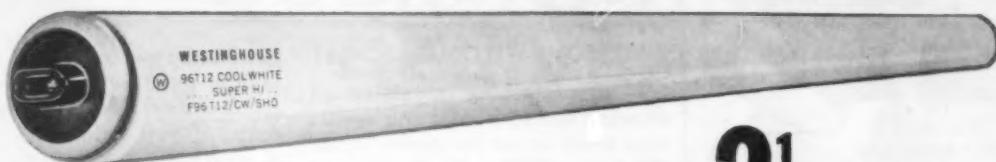
POLISHING, BUFFING MACHINES

Seven types of straight line type automatic polishing and buffing machines are described in a 16-page, 2-color catalog. Basic factors in the selection of a machine are discussed.

Acme Mfg. Co.

Write No. 17 on Inquiry Card—Page 32

NEW WESTINGHOUSE SUPER-HI™



FLUORESCENT LAMPS GIVE $2\frac{1}{2}$ TIMES
THE LIGHT OF ORDINARY FLUORESCENTS



Westinghouse has developed a new Super-Hi fluorescent lamp that gives up to $2\frac{1}{2}$ times as much light as regular fluorescent lamps . . . and nearly double the light of Hi-Output™ lamps. So now you can get much more light without increasing the number of fixtures. That means lower initial cost because you have fewer fixtures to buy . . . lower maintenance cost, too, because you have fewer fixtures to maintain. These powerful new lamps are ideal for medium and high bay industrial and outdoor lighting.

- ✓ Special cooling chambers maintain proper vapor pressure to give longer life . . . more light.
- ✓ Longer life cathodes add to lamp life.
- ✓ New Chromium-Vanadium plating on lead wires retards end-darkening.
- ✓ Smooth slim design gives uninterrupted brightness all around the tube . . . much lighter weight for safe and easy handling.
- ✓ Interchangeable . . . can be used in any fixtures designed for new extra Hi-Output lamps.
- ✓ More reliable starting even in damp weather . . . special silicone coating over exterior surface of the lamp prevents collection of moisture.

All Westinghouse fluorescent lamps have "Ultralume"™ phosphors to assure maximum brightness for the life of the lamp. There's one for every industrial, business and home use. Specify Westinghouse on every lamp order. Call your local authorized Westinghouse agent or write—Westinghouse Lamp Division, Bloomfield, N. J.

YOU CAN BE SURE...IF IT'S Westinghouse FLUORESCENT LAMPS

For More Information Write No. 192 on Inquiry Card—Page 32



Engineered Wire for Engineered Products Supported by Complete Factory Stocks

1. Extremely close diameter tolerances—no "space" problems.
2. Process-controlled copper—no shorted turns due to slivers.
3. Uniformly applied insulations—no "spacing"—no wrinkles.
4. Uniformly soft copper for windability and handling.
5. Continuous lengths on each reel—no brazes—no faulty winding—no excess scrap.

Other Magnet Wires—For Every Requirement

105C (Class A), Vinyl Acetate-Nylon—NYLCLAD®

130C (Class B), Polyester—BELDITHERM

105C (Class A), solderable Polyurethane—BELDSOL*

105C (Class A), solderable Cellulose acetate—CELENAMEL*

105C (Class A), oleoresinous, F.E.—BELDENAMEL*

*Belden Trademark
Reg. U. S. Pat. Off.

One Wire Source for Everything Electrical & Electronic

Belden
WIREMAKER FOR INDUSTRY
SINCE 1902
CHICAGO

Magnet Wire • Lead Wire • Power Supply Cords, Cord Sets and Portable Cord • Aircraft Wires • Electrical Household Cords • Electronic Wires • Welding Cable • Automotive Wire and Cable

01A02H8

For More Information Write No. 193
on Inquiry Card—Page 32

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Letters To The Editor

A WELCOME WELCOME BOOKLET

I am attaching a statement showing the 43 purchasing agents who wrote to me for copies of our "Welcome to the B. C. Electric Purchasing Department" booklet. These all resulted, of course, from the write-up in PURCHASING Magazine.

As I have travelled considerably since your article was written, I have been requested verbally, by many Canadian purchasing agents, for a copy of the booklet, and I have either handed them out or written to them on my return to the office.

G. L. Haszard
General Purchasing Agent
British Columbia Electric Co., Ltd.
Vancouver, B. C.

RATIOS

I read with considerable interest your editorial "Don't Cut The Buying Staff" in the July 7 issue of PURCHASING.

It said in part, "Experience consistently shows that the well staffed department effects purchase savings far in excess of the added personnel expense. That's where profits are made in purchasing, although paradoxically the savings from specialized, analytical buying actually tend to raise the ratio of purchasing expense to dollar expenditure. Where that ratio is exceptionally low, it is often the danger signal that material costs are too high."

I would appreciate your forwarding any available ratio figures for various industries. Or, perhaps you could refer me to some article in another issue of PURCHASING which covered this subject.

G. O'Brien
Purchasing Agent
Ford Motor Company of Canada
Windsor, Ontario

• We are sorry that we do not have any recent figures showing the ratio of cost of operating a

purchasing department to the volume of purchases. Mathematically, as you can see, the ratio would go up if you reduce the volume of purchases or if you increase the expense of operating the purchasing department. For example, if it costs you \$2 in departmental expenses to spend \$100, the ratio is .02. Raise your departmental expenses to \$3 through more research, or greater emphasis on value analysis and the chances are that you will reduce your purchase expense to, say, \$97. In the second case your ratio is higher but your total expenses are lower.

COVER TO COVER

We have subscribed to PURCHASING Magazine for over 15 years and want you to know that we consider your recent change to a bi-weekly publication meets with our unqualified approval.

It seems so much easier to complete the magazine from cover to cover than when it was a monthly publication.

J. J. Davis
Purchasing Agent
Pierce & Stevens Chemical Corp.
Buffalo, New York

HOW HIGH IS HIGH

Just finished reading "Managing Materials In a Small Plant" in the August 4 issue.

What is amusing to me, or maybe surprising, is today's consideration as to what a small plant is. When I got to the second paragraph and a department of 13 people was mentioned I began to wonder how small we are.

Our company has 110 employees and I take care of all purchasing—a one-man department. In addition I watch inventory and production control and find time for plant visitations.

How large is a small company?
H. E. Shawvan
Purchasing Agent
Sherman-Reynolds, Inc.
Chicago, Illinois

MAKE SURE YOUR SHIPPING RATES COVER DOOR-TO-DOOR DELIVERY



RAILWAY EXPRESS COMPLETE SERVICE can mean great savings in time and money

Many so called "bargain" carriers quote prices which do not include *complete service*. With Railway Express you know you get door-to-door delivery. Your shipments are picked up

and delivered at no additional cost within REA vehicle limits. This plus many other advantages assures you the fastest possible shipping at the lowest possible cost.

HERE ARE DOWN-TO-EARTH FACTS ON RAILWAY EXPRESS SERVICE

Widest Coverage—

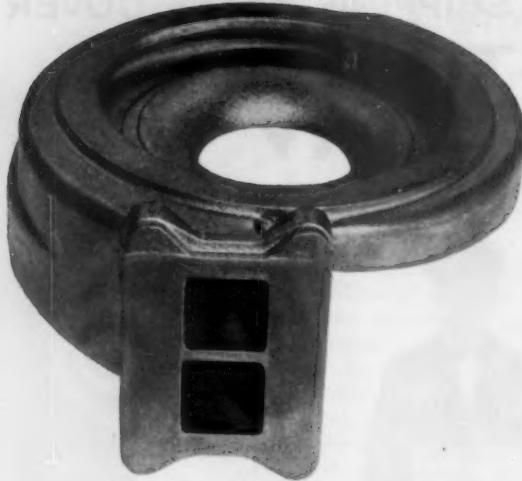
Railway Express serves some 23,000 communities to give you mass distribution—with *one company responsibility*. You reach *every* major market in the U. S., and with REA World Thruway Service—most every major market abroad. No worries about delays and divided responsibility in transferring between two or more carriers.

Special Low Rates—

Railway Express offers special low commodity rates on ready-to-wear merchandise, graphic arts materials, hosiery, shoes, drugs, import-export traffic and for many other categories. Call your nearest Railway Express Agent. He'll tell you why—



THE BIG DIFFERENCE IS RAILWAY EXPRESS



SAVE WHEN THE HEAT IS ON

This 20 pound Ni-Resist casting made for the Schwitzer Corporation by Hamilton Foundry is the turbine casing of a diesel engine turbocharger. Exhaust gases which turn the impeller at speeds up to 90,000 rpm subject the housing to rapid cyclic temperature changes up to 1500° F. Any free scale formed at these temperatures could erode and eventually destroy the impeller blades. Ni-Resist was chosen for this part because it produces practically no free scale, it resists growth and oxidation at high temperatures, and it resists cracking under thermal shock.

Unit production costs are lowered by finding and using the most efficient material available. In this case, Ni-Resist castings combine design flexibility and machinability with long service life under severe temperature stresses. Ni-Resist castings from Hamilton Foundry have dimensional accuracy, uniform machinability, fine surface finish, a low rejection rate, and are delivered on schedule—a combination of factors which lower unit costs and insure Schwitzer's reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (MODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD



HAMILTON FOUNDRY

The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio • TW 5-7491

For More Information Write No. 195 on Inquiry Card—Page 32

Letters

• It is true that The Heath Company (subject of the above mentioned article) does not have a particularly small purchasing department. However, the over-all business is not big since they have a total of approximately 450 employees. But the Department of Commerce defines this as a small business; the usual gauge being 500 employees. Any company with less than 500 employees is a small business.

CORRECTION

Any Canadian P.A. who wishes to join the association of purchasing agents should apply to: W. A. Small, executive secretary, Canadian Association of Purchasing Agents, 67 Yonge Street, Toronto 1, Canada. In our August 4 Letters To The Editor we inadvertently suggested the N.A.P.A. offices in New York as a source for information.

INVENTORY CONTROL

PURCHASING Magazine, with its various articles concerning inventory control and material control systems has contributed greatly to our better understanding of their importance in a successful organization.

Adolph S. Kramer
Purchasing Agent
Plastic Age Company
Saugus, Calif.

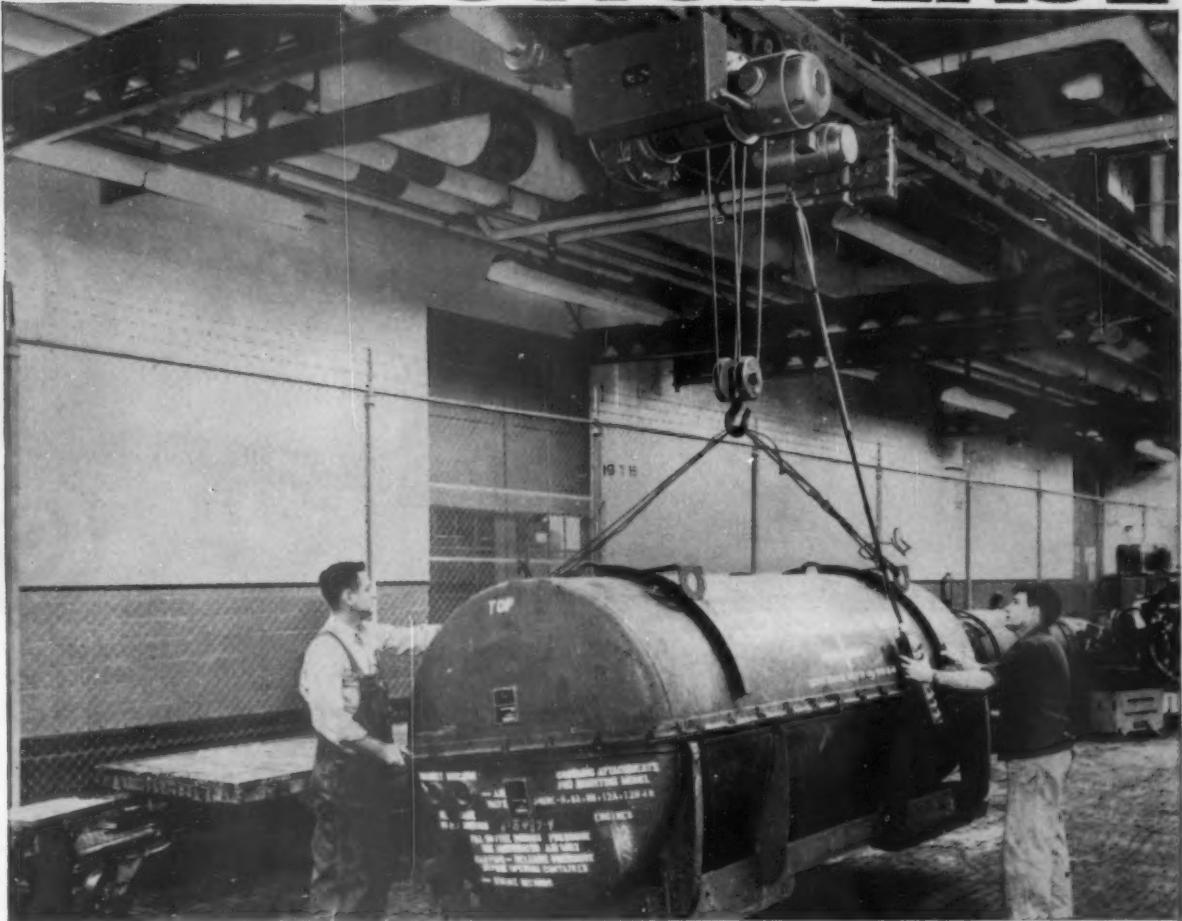
20 YEARS OF PURCHASING

I would like to indicate to you, as a subscriber to PURCHASING over the past 20 years, that I have found the issues at all times, interesting and in many cases the article and coverage were of significant interest and merit.

L. R. Price
Purchasing Agent
Fiberglas Canada Limited
Sarnia, Ontario

FOR MORE INFORMATION
USE INQUIRY CARD
PAGE 32

PUSHBUTTON EASE



EASY OPERATION OF YALE HOIST MEANS SAFE SHIPMENT OF "CANNED" JET ENGINE

Yale Cable King Electric Hoists take to heavy duty cycle operations like ducks take to water! Here, a sturdy Cable King moves a packaged jet engine—safely, smoothly, rapidly. Big jobs like this are all in a day's work for these rugged Yale Electric Hoists.

Yale Cable King Electric Hoists are available in hook, lug or trolley suspension. Capacities range from $\frac{1}{4}$ to 15 tons—allowing a wide choice for different heavy duty jobs in a coordinated handling system. For full facts and expert advice about lifting problems, get in touch with your Yale Hoist Distributor—in the yellow pages of your phone book.

Check these outstanding engineering features of every Yale Cable King

EXCLUSIVE AIRCOOLING. Sirocco blower cools brakes, gearing and oil—eliminating overheating, excessive wear and need for cool-off time.

QUALITY CONSTRUCTION. Precision ball and roller bearings produce smooth action. Gears and pinions heat-treated for wear resistance.

INSTANT POWER. High-torque, heavy-duty, totally-enclosed motor for fast lifting.

TWO-BRAKE SAFETY. Weston-type load brake with positive lubrication for controlled lowering and magnetic motor brake. Either will hold the load.

POSITIVE LOAD CONTROL. Pushbutton action for quick and easy load spotting. One hand free to guide load.

YALE*
REG. U. S. PAT. OFF.

YALE & TOWNE

INDUSTRIAL LIFT TRUCKS & TRACTOR SHOVELS • HOISTS

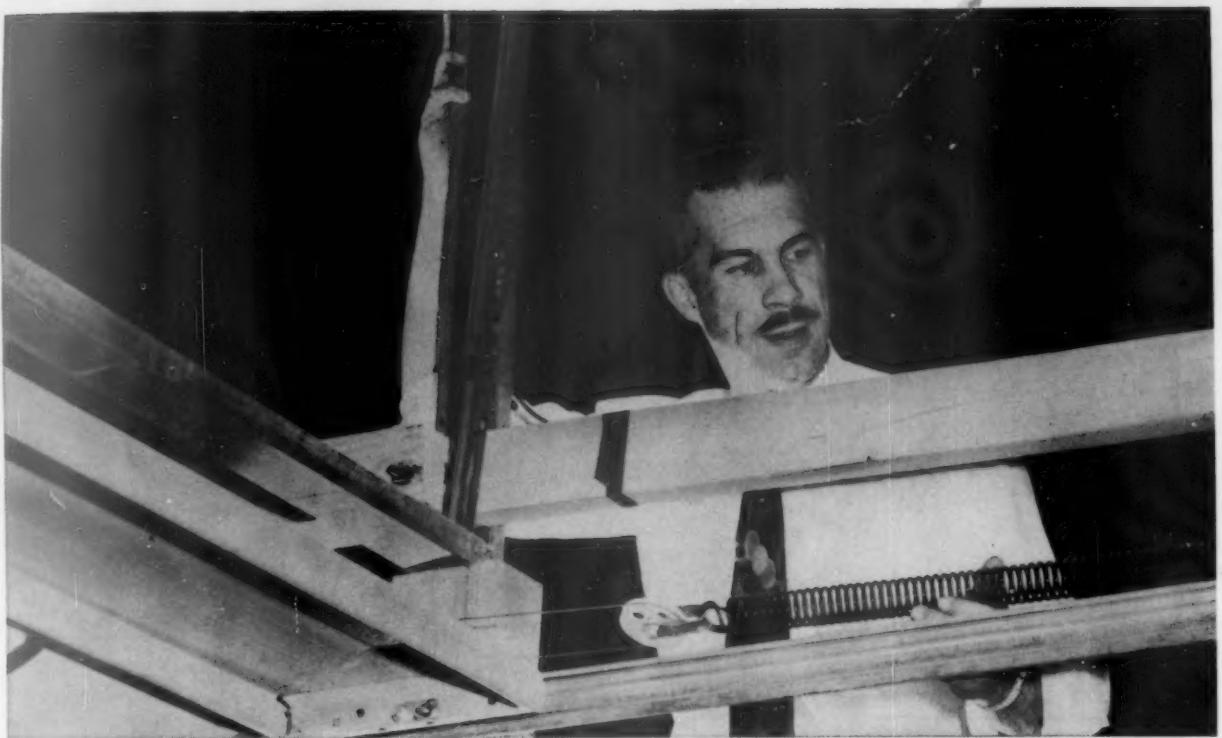
GASOLINE, ELECTRIC, DIESEL & LP-GAS INDUSTRIAL LIFT TRUCKS • WORKSAVERS
WAREHOUSERS • HAND TRUCKS • INDUSTRIAL TRACTOR SHOVELS • HAND AND ELECTRIC HOISTS

YALE MATERIALS HANDLING DIVISION. THE YALE & TOWNE MANUFACTURING CO. MANUFACTURING PLANTS: PHILADELPHIA, PA.; SAN LEANDRO, CALIF.; FORREST CITY, ARK.

For More Information Write No. 196 on Inquiry Card—Page 32

SEPTEMBER 15, 1958

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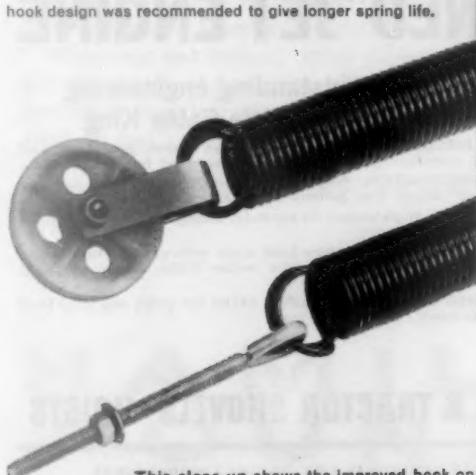


At Steel Door . . .

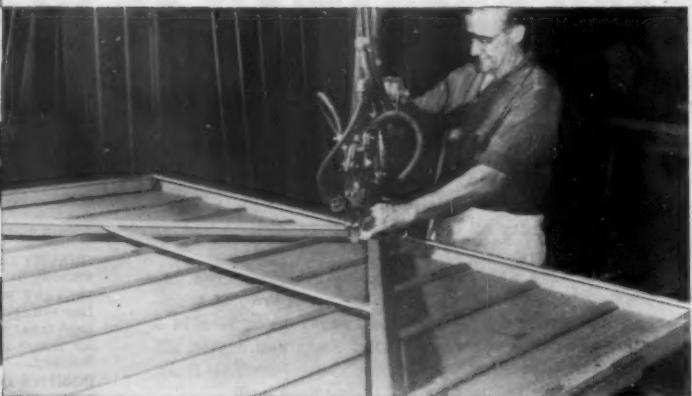
USS American Springs

thanks to AS&W

In the American Steel & Wire Fatigue Laboratory, a technician runs tests on a USS American Spring, designed for Steel Door use. On the basis of this test a change in hook design was recommended to give longer spring life.



This close-up shows the improved hook on the extension springs supplied by American Steel & Wire for the Steel Door overhead garage doors.



A Steel Door workman assembles a Berry One-Piece Door. This company uses steel exclusively for all doors because of its many consumer advantages. Steel is stable, won't warp or swell. Steel doors need less maintenance and preparation, and steel doors are easy to operate.



stretched 31,000 times and still going strong...

Spring Engineering Research Service

The Steel Door Corporation, Birmingham, Michigan, is the world's largest manufacturer of residential garage doors. For the production of these doors they use about 150,000 USS American Springs every year. Steel Door asked American Steel & Wire for a statistical evaluation of the fatigue life of the extension hook-type springs they use. The AS&W Spring Engineering Research Service tested these springs in the Fatigue Laboratory and recommended a change in hook design.

So successful was this design change that the life of the springs has been materially increased. At the Steel Door plant a cycle test was set up using USS American Springs on an overhead door. At the present time these springs have completed over 31,000 cycles without showing any sign of failure. This is the equivalent of 25 years of normal usage.

Mr. Ralph Qualman, Advertising Director and Service Manager, says: "It is extremely important that the springs—especially those used on sectional doors where

the strain is greatest—have proper tension and a long life. American Steel & Wire supplies Steel Door with springs that meet their engineering specification and life expectancy."

If you have a spring problem or would like advice on the use of springs in your product, get in touch with our general offices in Cleveland, or any American Steel & Wire Sales Office. You can benefit from the knowledge of AS&W's Spring Engineering Research Service. The Service has been engaged in laboratory experiments of static and dynamic testing for 20 years and has accumulated invaluable data on stress and fatigue life of steel springs, while endeavoring to improve efficiency in the use of steel—from steel chemistry through product application—to more economically cope with today's rigorous demands. This accumulated knowledge of the AS&W Spring Engineering Research Service is at your disposal. *American Steel & Wire, General Offices: Rockefeller Building, Cleveland 13, Ohio.*

USS and American are trademarks

American Steel & Wire
Division of



United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors • United States Steel Export Company, Distributors Abroad

For More Information Write No. 197 on Inquiry Card—Page 32



The New

COFFING *Quik Lift*

COIL CHAIN
ELECTRIC HOIST

"Pistol Grip"
push-button station
permits easier handling of loads

Without shifting his grip, an operator can depress the up-down buttons of the "Pistol Grip" push-button station and at the same time pull a trolley mounted hoist along the beam to another position—a strain cable is incorporated in the control cord.

Convenience is coupled with safety, since the push-button station is made of non-conducting, impact resistant plastic; the push-buttons are mechanically interlocked; and the control circuit is limited to 115 volts, regardless of hoist voltage.

Coffing Quik-Lift hoists are available in 20 models ranging from $\frac{1}{4}$ to 2 tons in capacity. Aluminum housings make them lightweight and easily portable, yet strong and durable. Special features include instantaneously releasing magnetic-type brakes, five-pocket load sheaves for reduced chain wear, and simplified wiring systems which permit motor voltage changes by shifting only seven quick connect terminals.

The new Coffing Quik-Lifts are the outstanding hoists in their size range from the standpoints of convenience, durability and economy. For details, consult your Coffing distributor, or write for Catalog ADH-65.

COFFING HOIST

DIVISION OF
DUFF-NORTON COMPANY

823 Walter Street • Danville, Illinois

Purchasing People In The News

Sheffield Plastics, Inc., Sheffield, Mass. has appointed **John E. Mullen** as vice-president in charge of purchasing and production. Prior



John E. Mullen

to his new position Mr. Mullen has been a sales representative and, more recently, office manager for the firm. He was formerly associated with Metropolitan Life Insurance Company and the Old Colony Envelope Company of Westfield, Mass.

Herbert L. Gressens has been promoted to sales manager of the electric utility division of **Whirlpool Corporation, St. Joseph, Mich.** Until recently on special sales assignments, Mr. Gressens succeeds C. Reg Armstrong, now general manager of the RCA Whirlpool Detroit Sales Division. Prior to joining Whirlpool in late 1956, Mr. Gressens was general sales manager of Culligan, Inc., Northbrook, Ill. From 1938 to 1946 he was with Firestone Tire & Rubber Company, Akron, Ohio. There he rose to the position of buying and merchandise manager in the home and auto supply department.

Jessop Steel Company, Washington, Pa. has named John R. Harbaugh as manager of its newly created district sales office in Houston, Texas. Mr. Harbaugh, who formerly headed the district sales office in Detroit joined Jessop Steel in 1940 as a metallurgical service engineer. In 1946, he was named assistant general sales manager and became assistant vice president-sales in 1952. He has been manager of sales for the Michigan district since 1954.

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on Inquiry Card—Page 32

SEPTEMBER 15, 1958

Steel in 1940 as a metallurgical service engineer. In 1946, he was named assistant general sales manager and became assistant vice president-sales in 1952. He has been manager of sales for the Michigan district since 1954.

The **T. J. Cope Division, Rome Cable Corporation, Collegeville, Pa.**, has made two new appointments to their sales force. Robert M. Wade is the new sales manager at the division. He has been with Cope as sales engineer since August 1955. Prior to that he had been in industrial sales. Cope also has expanded its sales department with the addition of Frank Kennedy as special sales engineer. Mr. Kennedy had been with Cope from 1948 to 1954 prior to joining Delta-Star. He has now returned to Cope.

Cold-Prest Impact Extrusion Division of the Mueller Brass Company, Port Huron, Mich., has named Gregory R. Taylor sales



G. R. Taylor

manager. A sales engineer for the past eight years, Mr. Taylor was with the Weatherhead Company and the Townsend Company. During the past two years, he was a sales engineer of steel extrusions for the Adrian Engineering and Manufacturing Company.

Royal Metal Manufacturing Company, New York, N. Y., has announced the appointment of Walter J. Daily as national sales



Walter J. Daily

manager. Mr. Daily was formerly vice president, sales of F. C. Russell Company and vice president and general manager of the Lewyt Corporation, Vacuum Cleaner Division. He has also held positions as director of advertising and sales promotion at both General Electric and Bendix Home Appliances.

The appointment of Edward Danielson, Jr. as regional manager for its newly created West Coast Region has been announced by **The Okonite Company, Passaic, N. J.** Included in the new territorial division are the Los Angeles, San Francisco, Portland and Seattle sales offices. Mr. Danielson joined the company's San Francisco office in 1947, serving as office manager and district engineer. In 1950, he was named district manager of the Los Angeles office which post he filled until his recent promotion.

J. Vincent Klein has been named purchasing agent for the Girdler Process Equipment Division of Chemetron Corporation at Louisville, Ky. Mr. Klein has been with the company since 1937. He has been a buyer for fifteen years.



IN FASTENERS SOUTHERN IS plated

For plated screws that assure corrosion resistance and beauty, you can rely on Southern's better finishes in plated nickel, zinc, cadmium, brass, copper, statuary bronze, blued or black oxidized screws. All of these are finished in our own plant to rigid specifications. Chromium plated brass wood screws, machine screws and nuts, and hot galvanized steel wood screws are stocked in all popular sizes.

Southern's cadmium and zinc plated fasteners are treated for extra brightness and corrosion resistance with IRIDITE® chromate conversion coating. This also makes the screws suitable for painting without additional treatment.

Try Southern's quality plated screws. There are no better available—anywhere. Send your order or inquiry to Southern Screw Company, P. O. Box 1360, Statesville, North Carolina.

Wood Screws • Machine Screws & Nuts
Hanger Bolts • Tapping Screws • Wood
Drive Screws • Carriage Bolts

Warehouses: New York • Chicago • Dallas
• Los Angeles



For More Information Write No. 199
on Inquiry Card—Page 32

FOB—"filosofy of buying"

THE EDITORIAL welcome mat was out in the last issue for another in a long list of distinguished Purchasing contributors. But we temporarily forgot our manners and failed to introduce our new author. We're referring to Lyle Treadway, whose article on salesmen's claims appeared on page 70 of our September 1 issue. Lyle, who will do a series of legal articles for us, is that rare combination—a practical purchasing executive and a practicing attorney. He is purchasing agent for The Federal Glass Company in Columbus, Ohio.

Lyle has taken an active part in affairs of the National Association of Purchasing Agents for a number of years and was Vice President for District 6 in 1957-58.

left out pages 82 and 83 of Miss Miller's copy. To Miss Miller went an extra page 82; to the editors went the satisfaction of knowing their efforts were appreciated by a hitherto unsuspected source.

EVEN THIEVES are analyzing value now. Parker Pen Company passes along a story about a couple of safecrackers who broke into a Janesville, Wis. packaging firm and went to work. In the course of their operations they found it feasible to tip a one-ton safe on its side. Fearing that the weight of the safe would cause it to crash through the wood flooring, they looked around for something to cushion its fall. The bandits' choice: 25 small boxes holding 300 ball-point refill cartridges.

The idea worked, and the robbers began chewing away at the safe. The next day, five men lifted the safe and examined the 300 metal refills. Only eight were slightly dented. Parker officials are a little hesitant about pushing this new application of one of their products. But one company executive expressed a sneaking admiration for the robbers' analytical approach. "After all," he said, "they asked themselves 'can a standard product be found which will be usable?'; decided it could and set about getting it. There's a lesson of some sort there for purchasing agents."

WE ARE naturally proud of the much higher-than-average readership ratings PURCHASING gets on all reader research surveys. But we have never pretended to get very intensive readership from anyone who was not a buyer or purchasing agent. So naturally we were both surprised and delighted with a recent letter we received from Miss Jeanette Miller, secretary to the director of procurement of G. M. Giannini of Pasadena, Calif.

Miss Miller told us her boss enjoyed reading PURCHASING (which is always music to our ears but happily was not the first flattering comment from readers) and then added that she too likes PURCHASING—especially articles on cutting paperwork. And there was no denying the sincerity of Miss Miller's compliment. She went on to tell how she had noticed an article called "Talk Away Your Paper Work" listed on the contents page of the July 21 issue as being on page 82. But on looking for the article, Miss Miller found no page 82. The automatic machinery in our printing plant had goofed and

SOMEBODY finally had the courage and good sense to give creeping machine worship a good kick in the pants. The First National Bank of Boston has just installed a new electronic processing system that can read and write at the rate of 60,000 digits a second. Simultaneously it can handle

1,000 multiplications, 4,000 additions, or 5,000 comparisons. But did the man who had charge of the installation call the unit a "brain?" Did he hail it as a "miracle?" Not Benjamin W. Taunton, may his tribe increase. He struck a blow in defense of the uniqueness of the human personality by calling the machine a "moron." "The best the machine can do is take and execute orders faithfully and speedily," says Mr. Taunton. "The thinking is done by a highly trained staff of specialists" Stout fellow, Taunton. "Capability and godlike reason" are man's and man's alone. Let's hope words like yours will help turn aside his desperate efforts to deny it.

• • •

REQUESTS for information on sources of various products and services are fairly routine with us. We've been receiving and answering hundreds of them annually for many years. If we can't locate a specific supplier, we at least try to give the inquiring reader another possible source of the information. Most of the items people are interested in are confined to the industrial field but every once in a while people want us to help them locate, for example, various types of mustard seed, genuine old-fashioned steamboat whistles, and underground plastic sprinkling systems.

The prize off-beat request this month is for a "battery powered vibrator to be used for pollinating tomato plants. This is a small vibrator with a wire loop to go over the tomato blooms to pollinate them."

The editors—Manhattanites and suburbanites alike—did our best. No luck. Not even the Long Island Agricultural Institute, that fountain of help for those of us who don't have much luck with anything but crabgrass, knew where to locate this most unusual of vibrators. Can any of Purchasing's good, green-thumbed readers help?

SEPTEMBER 15, 1958



Are you using wire cloth or wire cloth parts which must be corrosion resistant? Are the service conditions in your plant really tough? If you have a problem selecting the proper anti-corrosive alloy, Newark Wire Cloth may have the answer.

Available in all corrosion resistant metals, Newark Wire Cloth is accurately woven in a wide range of meshes, ranging from very coarse to extremely fine.

If you have a wire cloth problem involving corrosion, please tell us about it . . . we may have the answer.



**Newark
Wire Cloth
COMPANY**

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

For More Information Write No. 200 on Inquiry Card—Page 5.

For More Information Write No. 201
on Inquiry Card—Page 32→
61

A coating in **COLORS** that really

STICKS TO GALVANIZED METAL

RUST-OLEUM.[®] GALVINOLEUM.[®] COATINGS

Paint peeling off galvanized metal? Here's the practical answer to an *everyday* problem!

- **First**— You can apply Galvinoleum right over brand new galvanized metal without etching, without weathering—saving costly, tedious surface preparation.
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- **Third**— You can beautify as you protect in your choice of four attractive Galvinoleum colors—Red, Gray, Green, Metallic.

Look around! How many galvanized metal surfaces do you have—gutters, downspouts, roofs, siding, heating and air conditioning ducts, etc.? Galvinoleum used now can prevent peeling "headaches" later. Make it a point to check with your Rust-Oleum Industrial Distributor for a free test demonstration or application. He'll be happy to consult with you on your galvanized metal maintenance problems. Attach the coupon to your letterhead for a free test sample and name of your nearest Rust-Oleum Industrial Distributor—there is no obligation.

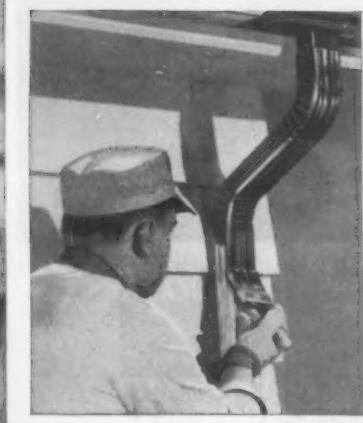
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Distinctive as your own fingerprint.
Accept no substitute.

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2592 Oakton St. • Evanston, Illinois

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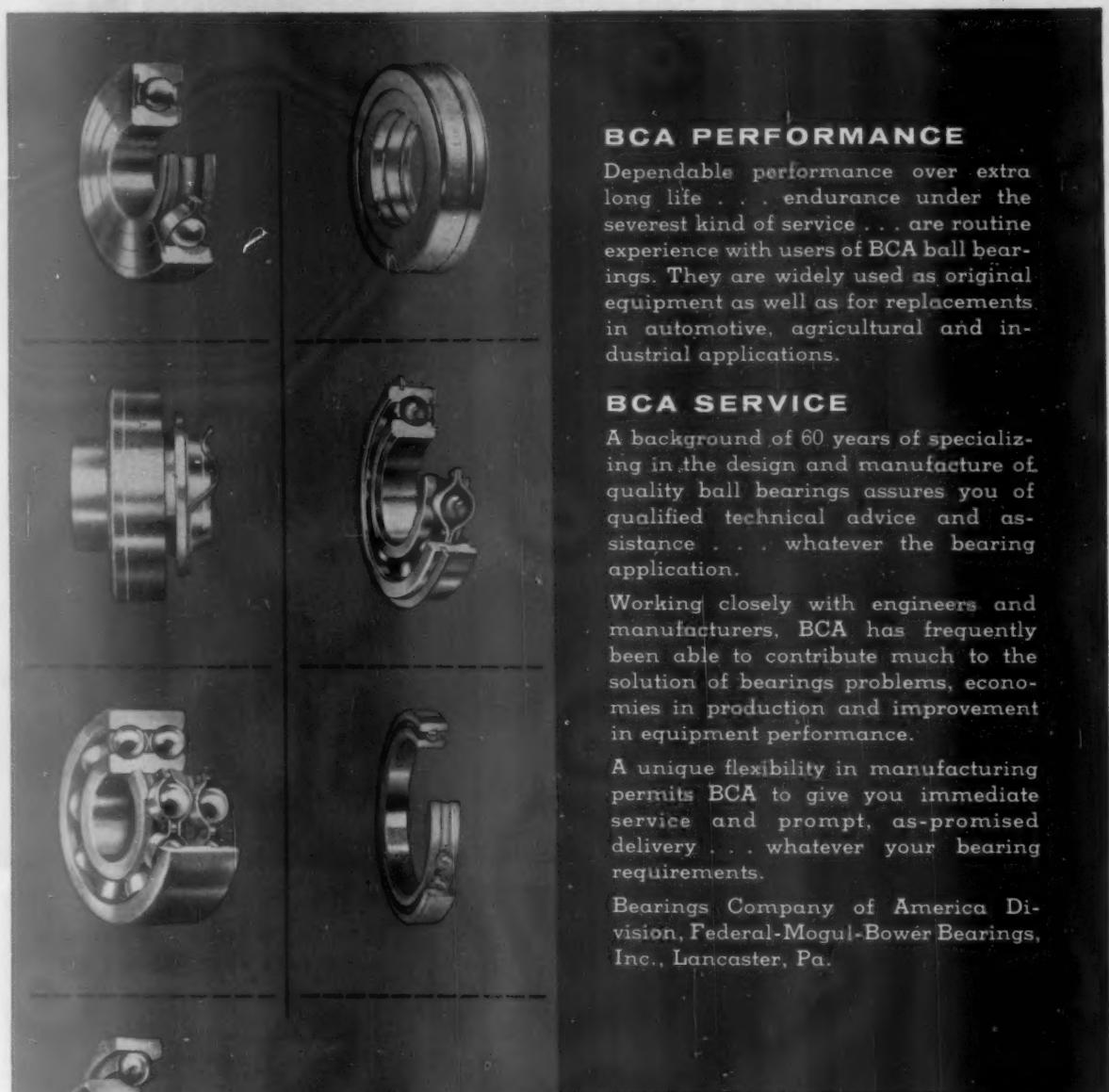
Red

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FINEST in bearing performance
... BEST in bearing service
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BCA PERFORMANCE

Dependable performance over extra long life . . . endurance under the severest kind of service . . . are routine experience with users of BCA ball bearings. They are widely used as original equipment as well as for replacements in automotive, agricultural and industrial applications.

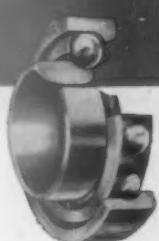
BCA SERVICE

A background of 60 years of specializing in the design and manufacture of quality ball bearings assures you of qualified technical advice and assistance . . . whatever the bearing application.

Working closely with engineers and manufacturers, BCA has frequently been able to contribute much to the solution of bearings problems, economies in production and improvement in equipment performance.

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BEARINGS COMPANY OF AMERICA

DIVISION OF
Federal-Mogul-Bower Bearings, Inc.



For More Information Write No. 202 on Inquiry Card—Page 32

Highlights of This Issue

✓ **Turning Point or Double Bottom?**

Most key business barometers stopped declining last April; a few have registered sharp increases since then. The stock market is rising and Federal Reserve is tightening up credit. The big question: does this new inflationary climate mean now is the time to boost inventories or does it still pay to operate on a near hand-to-mouth basis? The Pulse of Business starting on page 7 won't give you the answer to this question. That's something only you can answer. But it will provide you with facts and ideas that will help you shape your planning.

✓ **Purchasing's Big Role at Rheem**

Every P.A. knows that purchasing can do a magnificent materials management job if it is given authority commensurate with its responsibility.

"Purchasing's Big Role at Rheem Manufacturing," starting on page 69 is a case study that proves this principle. At Rheem, purchasing is responsible for phases of materials management including inventory control. Rheem purchasing agents spearhead the company's value analysis effort and act as chairmen of plant-wide value analysis committees. They sit in on meetings of plant operating committees. They're recognized as important members of the company's management team.

The Rheem purchasing story is divided into five parts. It begins with a general discussion of purchasing's role at Rheem. To find out how Rheem buys steel, turn to page 71. To learn about inventory control, start on page 72. Obsolescence control is discussed on page 74, and Rheem's highly successful value analysis program is described on page 76.

✓ **Free Traffic Cost-Cutter**

We all know that it costs more to ship by air express than by parcel post. But do we think about relative traffic rates as much as we should? Do we always ship the most economical way? The fact is buyers are human and need to be reminded of freight costs. North American Aviation has developed an excellent traffic guide (see page 80) which can serve as a daily reminder to watch freight.

✓ **Cold Heading Cuts Cost**

If you buy component parts, it might well be worthwhile to review many of the parts that are machined from bar stock or castings or forgings. It's just possible you can make a big saving by switching to cold heading. To learn more about this low cost process read, "What The P.A. Should Know About Cold Heading," on page 78.

Straits

TIN REPORT



New developments in
the production, mar-
keting and uses of tin

Tin becomes gold . . . when alloyed with copper to produce a 24-kt. gold brilliance for attractive decorative finishes. The ratio of tin to copper is 12% to 88%. When the tin content is increased to 20%, the alloy takes on a pale yellow hue. Tin-bronze is reported to eliminate the usual alloy plating difficulties. It is as easy to control as single metal deposition.



Superior to nickel plate in hardness and abrasion resistance—that is how the product of a new, highly decorative electroplating process is described. The new plating, successfully used for several metals, is a 50-50 tin-copper alloy. It maintains its original color up to its own melting point.



Exceptional resistance to salt spray dictated approval by the U.S. Navy's Bureau of Aeronautics of an electro-deposited cadmium-tin alloy . . . 75% cadmium, 25% tin. This rugged alloy protects Navy hydroplane engines from the corrosive action of salt water.



Tin is tough. That is why a plating of tin is commonly applied to automotive pistons. It prevents damaging scuffing during engine break-in. The plating serves as a protective lubricant.



Ask us to send you TIN NEWS, a monthly letter. It will keep you posted on tin supply, prices, new uses and applications.

The Malayan Tin Bureau

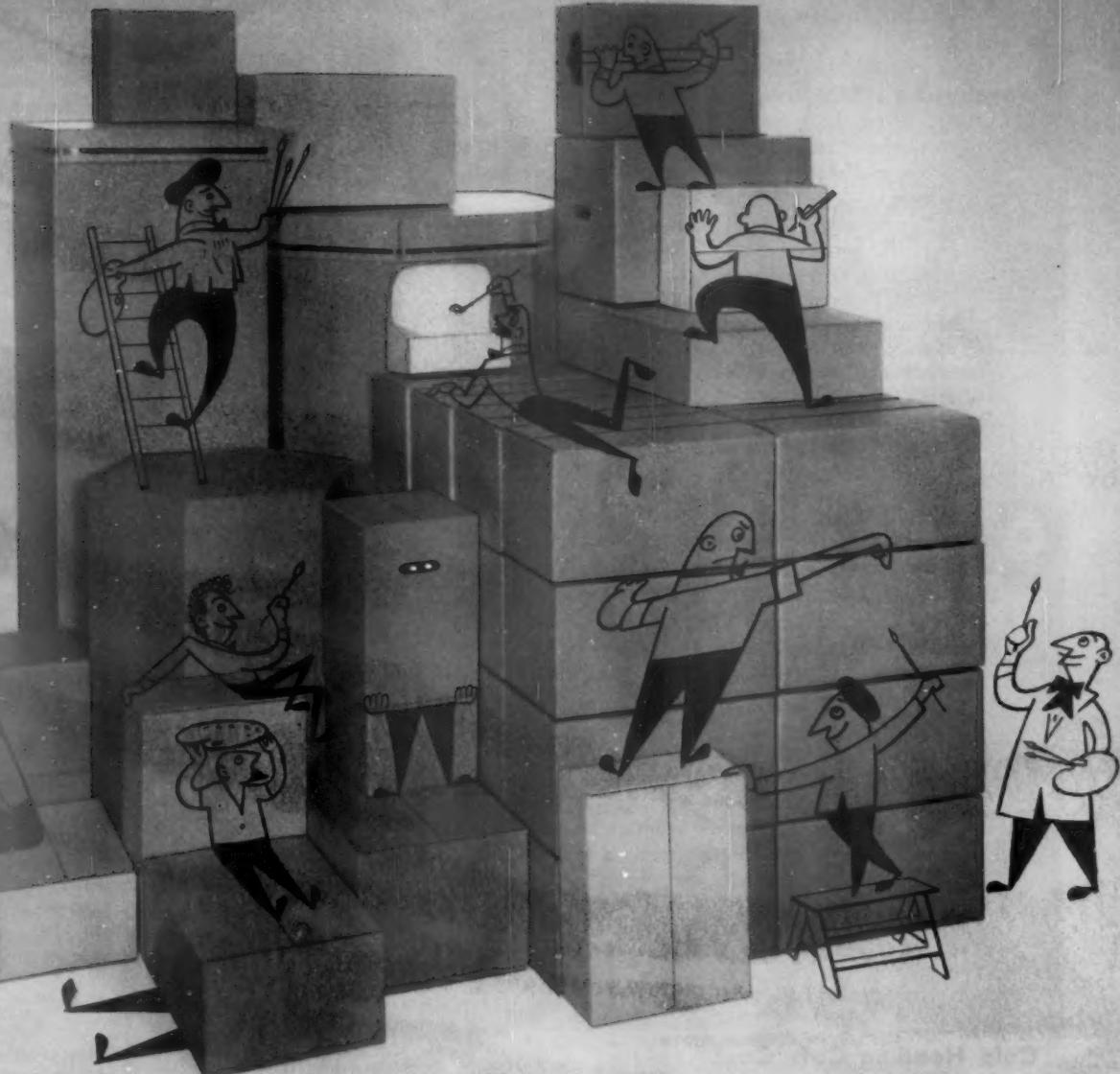
Dept. 451, 1028 Connecticut Ave., Washington 6, D.C.
For More Information Write No. 203
on Inquiry Card—Page 32

GAYLORD DRAWS SALES INTO YOUR PACKAGING PICTURE

Pull more attention, push more sales with striking Gaylord design and printing on your corrugated boxes. Our creative artists know how to give your product a promotional advantage.

For corrugated boxes that leave lasting sales impressions . . . or for engineered packaging . . . call your G-Man.* It costs no more.

*Your *Gaylord Man*—of course.



GAYLORD
CONTAINER CORPORATION



HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**



Not-So-Sweet Charity

WE DO NOT RESENT circular letters. They are a useful, economical, and effective means of mass communication, and have an entirely legitimate place in business. We send out thousands of such letters ourselves in the normal course of the year's activities.

But whenever we receive a circular letter that starts off with the salutation, "Dear Supplier," we instinctively marshal our defenses. There is something just a little ominous about that pseudo-personal greeting. For the chances are pretty good that some enterprising business man is using, or misusing, his company purchasing department to hi-jack contributions from his list of vendors in support of some pet project or charity.

The idea is not entirely original. We happen to be on some 28,000 or more supplier lists—usually to the extent of one \$4.00 annual subscription—and we notice with some concern that the practice is spreading. It would appear, then, that it is a successful mode of solicitation. This is not surprising. In our own case, even the most modest requests generally exceed the amount of the patronage we enjoy from the ambitious mass correspondents. But we can readily imagine that a supplier who has a substantial and hard-earned account at stake will think twice before discarding the appeal.

For the most part, it is probable that the solicitors have an honest and unselfish interest in the causes they champion. We assume, too, that the causes themselves are worthy ones. This has to remain in the realm of assumption, because Dear Customer rarely spells out any cogent reason, other than the one wholly irrelevant reason of business relationship, why Dear Supplier should be particularly and personally concerned.

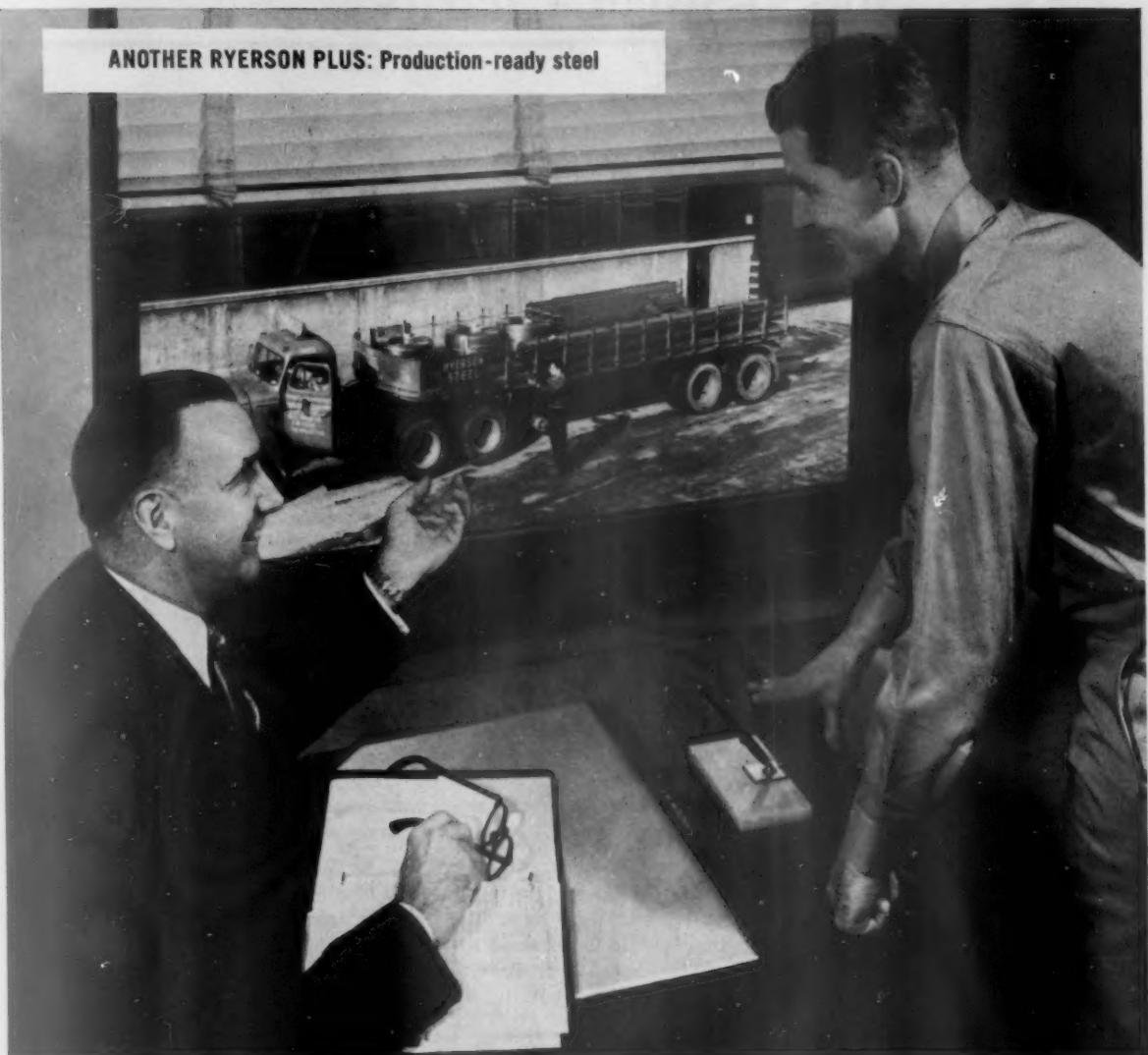
But however worthy the cause, the method is unworthy. If Dear Supplier offered any such gratuity as part of his sales solicitation, the purchasing department would be inclined to throw him out along with his bid. By what logic is it any less reprehensible to put the purchasing department in the position of demanding that tribute after the order has been placed on merit?

Any one who has ever been engaged in fund raising knows that sweet charity has its dollars-and-cents side. But even casual reference to the dictionary shows that a great deal more is involved. It has always seemed to us that charity appeals are slightly tarnished when they stress tax deductibility, which is another way of saying that some one else will foot the bill for your charitable instincts. The appeal to Dear Supplier is more than a tax deduction. It is a tax.

Let's face it. Any contributions of this sort are a straight business expense, the price of patronage. Charity never enters into the decision. If the big brass balks, the salesman on the territory will find some way of getting it into his expense report in another guise. By such little rifts is the integrity of business relations undermined.

Stuart F. Henrity

ANOTHER RYERSON PLUS: Production-ready steel



"There's the front end of our production line ... right on time"

Steel right off the truck—ready for your production line . . . your steel supply can be that simple when you rely on Ryerson. You order only the kind and quantity of steel you need—as you need it—and cut costs all along the line.

You reduce investment in equipment as well as materials. You save valuable storage space . . . reduce

handling costs, scrap loss, taxes, etc. You gain complete flexibility of steel supply without long-term commitments . . . and assure a ready, steady flow of material to keep production stepping. You're never caught short . . . you're never over-loaded.

Ryerson's size, facilities, staff and service attitude assure dependable delivery to meet regular schedules or to handle special short-run orders. Whatever you need, this unsurpassed source of Certified Quality steel is at your finger tips. Phone your nearby Ryerson plant today.



RYERSON STEEL®

Member of the  Steel Family

Principal Products: Carbons, alloy and stainless steel—bars, structural, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

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DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

For More Information Write No. 205 on Inquiry Card—Page 32

Purchasing's Big Role

At Manufacturing

By John Van Deventer

MATERIALS MANAGEMENT at Rheem Manufacturing Company is always challenging and probably occasionally frustrating. The challenge comes from the fact that Rheem spends about 53% of its \$189 million in sales on purchased parts and materials. For purchasing this is a particularly challenging assignment since it has full responsibility for all phases of materials management at Rheem including the buying, storing, and handling of all purchased materials.

The occasional frustration and a good part of the challenge results from the fact that Rheem is one of the most diversified corporations, for its size, in the world. The company makes a wide range of products including steel and fibre shipping containers, plumbing fixtures, heating and air conditioning equipment, water heaters, auto parts, and electronic equipment. This broad product diversification would in itself help pose plenty of materials management problems. Geographical dispersion makes coordinated procurement policy even more difficult. Rheem operates 17 different plants from coast to coast.

Rheem's solution to its materials management is two-fold. The first—and most important—phase is to give maximum authority and autonomy to its purchasing department. The second is a purchasing organization built on what Director of Purchases George Papas calls the "principle of decentralized operation with centralized control."

Consistent with its over-all organization, there are three levels of purchasing authority at Rheem: corporate, divisional, and plant. Top man is Director of Pur-

chases Georges Papas who reports directly to Executive Vice President C. V. Coons. Assisting Papas is a small staff including two assistant directors of purchases—Ken Riha and Will Roy.

Riha is a specialist in steel buying and spends the bulk of his time helping Papas on corporate-wide steel procurement problems. (Rheem is one of the largest buyers of steel in the country; its progressive approach to steel buying is discussed in detail on page 69.) Riha also coordinates Rheem's unique value analysis program in which purchasing agents head plant-wide value analysis committees. (This phase of Rheem purchasing is discussed in detail on page 74.)

Will Roy's major assignment is inventory control—which is purchasing's responsibility at Rheem.

(Rheem's inventory control program is described in detail on page 70.) Roy is also the corporate expert on purchasing procedures. With the help of plant and division purchasing people, he developed the company's outstanding purchasing manual. Besides keeping the manual up-to-date, Roy is constantly on the alert for new developments in office equipment and forms which would be of possible use to plant P. A.'s. Also in the corporate purchasing office are experts in traffic and trade relations who serve the various plant purchasing departments.

Rheem copes with the problems of product diversification by breaking the corporate organization into seven different product divisions. Each has a division purchasing agent responsible to both



Assisting Director of Purchases George Papas (seated) at Rheem's corporate headquarters in New York are, left to right: W. P. Hopkins, trade relations; and Assistant Directors of Purchasing K. E. Riha and W. H. Roy.

FUNCTIONS	POSITIONS	Typical Plant Purchasing Organization										
		Director of Purchases Gen.	Div.	Purchasing Agent	Purchasing	Material Control	Buyer	Mgr'l. Con. Suprv.	Asst. Mgr'l. Con. Suprv.	Mgr'l. Con. Clerk	Receiving Lead Man	Storekeeper
RHEEM MFG. CO. Purchasing Dept.	Asst. Dir. of Purch.											
ORGANIZATION	Division Purch. Agt.											
	Asst. Div. Purch. Agt.											
Scope of Supervision												
Statistical Reports	C	W	W	A	W	A						
Inventory Management	C	C	C	AS	DS	W	W	W	W	W		L
Value Analysis	C	C	C	AS	DS	W	W	W	W	W		L
Material Conservation	C	C	C	AS	DS	W	W	W	W	W		L
Purchasing Manual	C	P	A	A	DS	L	L	L	L	L	L	L
NRC & DRC Orders	C	DS	DS	A	W	W	W	W				L
Contracts	W	A	A	A	A	W	W	W				L
Source Relations	DS	W	W	W	W	W	W	W				L
New Materials	C	L	L	L	L	L	L	L				
Research Market	C	W	DS	W	W	W	W	W				L
Scheduling Guides	C	AS		W								
Purchasing Reports	P	A	P	A	P	A		A				
Purchase Orders	C	AS	AS	W	DS	W	W	W				L
Vendor Deliveries		AS	AS	DS	W	W	W					
Quantity Levels		AS	DS	W	W	W	W	W				L
Bills of Materials		AS	DS	L	L	L	W	A				L

This chart indicates the broad range of responsibility purchasing has at Rheem. The letters on the chart indicate responsibility; C—consultation; A—assists; AS—advisory supervision; DS—direct responsibility; P—prepare and write reports; W—workers; and L—learn.



Division purchasing agents meet periodically to discuss mutual problems. Shown here are: R. L. Smith, electronics division; R. W. Lussman, aircraft division; and P. J. Breting, automotive division.

his division manager and Director of Purchases Papas. Within the divisions, there are separate purchasing departments for each plant. The plant P. A. is the key man in Rheem purchasing.

"The position of the plant purchasing agent embraces all facets of the materials function," explains Director of Purchases Papas. "To do his job, the plant P. A. must not only know plant operations; he must also work closely with sales so that he can estimate future sales when planning inventory needs. To do his job, he must understand over-all company plans and objectives and know how they affect his own plant's operation."

The plant P. A., obviously, is a very important member of his plant's management team—and he is recognized as one. He attends all plant staff meetings; he's kept up-to-date on every phase of the plant's operations. "The plant P. A. isn't just handed a requisition and told what and how much to buy," declares Papas. "Instead he takes part in and is a major influence in making all decisions relating to materials management. He has both the responsibility and authority for all phases of the materials job."

Rheem's big problem obviously is to avoid dilution of its buying power by spreading its purchases out among 21 different plant purchasing departments. It gets around this problem with corporate-wide or division-wide purchase contracts; about 60% of the company's volume of purchases is handled in this manner.

Although the contracts are made at division or corporate level, the plant P.A.'s administer them. They write the orders and maintain routine buyer-seller relationships. If quality or delivery become major problems, division and corporate purchasing naturally step in and help the plant P. A.'s.

It is by such close teamwork that Rheem purchasing manages not only to circumvent problems arising from wide product and geographical diversification but to make as great a contribution to profit as any purchasing organization in the country.

Purchasing's Big Role at

Planned Steel Buying Protects Production



RHEEM'S ANNUAL steel consumption exceeds 300,000 tons. The company is one of the world's largest users of flat rolled steel, and ranks among the top 12 United States consumers of sheet and plate steel products.

"Steel is the lifeblood of our production line," declares George Papas, director of purchasing for Rheem. "More than 1,200 different gauges and sizes of steel are used in our plants. Sixteen of our major products require steel. These include steel drums and pails, water heaters and ranges, automobile bumpers and leaf springs."

Coordination of the intricate and complex flow of this raw material is done by corporate purchasing. Based on quarterly estimated steel requirements submitted by the divisions, corporate purchasing negotiates all steel allotments with the mill sources.

"Centralized negotiations help promote good long term relationships with the steel mills," says Papas. "The mills supplying our requirements can count on our tonnage on a continuing basis."

When tonnage for a given quarter has been agreed upon with the mills, allocations to divisions are made after allowing for current inventories, steel on order, estimated consumption, etc. The division purchasing agents then allocate steel to the plants who issue the actual purchase orders.

Corporate purchasing developed this procedure early in the steel shortage period following World War II and is following it even now in a period when steel is plentiful. "In this way," says Papas, "we maintain tight control over steel. We can act quickly in adjusting to changes in conditions at the steel mills."

Once allocations are made, the individual plants are expected to handle their own steel supply problems. However, when shortages occur, or unusual demands develop, division and corporate purchasing will help out. The usual solution is to adjust allotments. When requested by the plants, division and corporate purchasing also expedite steel from the mills.

Using a special steel analysis

form (see cut), the plant purchase agent makes a monthly analysis of each steel item in his inventory which compares estimated requirements with the sum of steel in inventory and on order. He then issues supplements to open orders to bring inventories into balance with requirements.

The analysis is made as early as possible each month in order to insure that order changes can be made by the mills. Separate analyses are made for each of the major categories of sheet steel: hot rolled, cold rolled and galvanized sheets, and plate.

In making the analysis, requirements are estimated for a period of time known as the rotation cycle. The rotation cycle equals the sum of lead time, in transit time, mill status, and standard inventory.

Total steel requirements for the rotation cycle are then compared to the total steel available, which is the sum of the steel in inventory and on order. The difference—weighed by the buyer's judgment—is the amount ordered during the following month.

Code	Gr	Size -- Spec. ... End Use Unless otherwise specified, all steel is ordered dry, bare & in 10,000 ft coils	Inventory				Inventory and On Order				Requirements				Place for M&R				
			No. Out (3)	I-S/Cort 2-Divd./ 2- C Sheets	I-S/Cort 2-Divd./ 2- C Sheets	Inv. Shr. & Whl.	I-S/Cort 2-Divd./ 2- C Sheets	Req'd. & Older 1)Order 2)Sheets	JAN 1)Order 2)Sheets	FEB 1)Order 2)Sheets	Total Available	JAN	FEB	MAR	Req'd. Bal. 1/4 Month	Total Req'd.	Add'l. Sheets Req'd.	Add'l. Tons Req'd.	Wearied Usage Billed Usage
79-01-14	14	072 X 44-1/2 X 102-1/2 HR ME 23-16 GWH Tank 16 Gal. C. L. Sheet Gas 16 Gal. C. L. Blank Gas	5,025 19 19	95.37 20.52	181 0			SP 100 1644 1820	SP 100 1030	SP 100 1030	8710	1500	1600	1800	2400	7300	2190	107	1450 6450
61-01-02	18	047 X 15-5/8 X 161-1/2 HR SE 55 Gal. Body RheemCote TH	5,675 171.17	60.81 29.02	13,052 4,000	0		SP 100 6,500 21,500	SP 100 18,15 24,607	SP 100 25,000	36,487	25,000	25,000	30,000	45,000	125,000	39,300 60,900	1352	82,000 116,000
61-01-07	16	0575 X 35-5/8 X 70-3/4 HR ME 55 Gal. Body RheemCote	5,625 237.12	42.00 47.52	12,376 4,000	0		SP 100 7000 8000	SP 100 30,900	SP 100 30,900	22,325	3,000	3,000	4,000	6,000	16,000	(60%) (6,000)	C	8,000 11,000
74-01-97	16	0575 X 51-1/2 X 62 HR ME FO	5,875 313.73	53.31 37.52	5,775	0		SP 100 1200 1200	SP 100 1400	SP 100 9575	2,500	2,500	2,600	4,100	12,500	2925			3,000 10,000

Rheem's plant purchasing agents use this form to make a monthly analysis of their steel requirements.

Inventory Control:

Plant P.A.'s Show the Way

INVENTORY MANAGEMENT is purchasing's job at Rheem.

Says Will Roy, corporate purchasing's administrator of inventories: "We define inventory management as the art of keeping the company's inventory levels at predetermined standards."

Here's how the art is practiced:

An overall inventory standard is set for each division. This standard, expressed as the ratio of inventory to sales, is developed by the executive management committee and division management.

Division management further

breaks down its overall inventory standard into standards for in-process and finished goods inventory. The division purchasing agent, sales manager, and manufacturing manager jointly set them for each product line in their division.

Raw material inventory standards are then set by purchasing. These standards are based on a percent of estimated consumption for the next month. For raw materials other than steel the standard is 100 percent of estimated consumption (a 30 day supply).

There are two standards for steel: 150 percent of estimated consumption (a 45 day supply) for Eastern plants, and 200 percent (a 60 day supply) for Western plants.

While purchasing doesn't set the standards for in-process and finished goods inventory, it does review them periodically. Roy, the administrator of inventories, works with the division and corporate groups in establishing inventory standards.

Plant Control

Purchasing's responsibility for inventory management at Rheem is carried right to the plant. The plant purchasing agent is chairman of his plant's inventory management committee. Other members include: sales manager, plant accountant, production manager, and material control supervisor. The committee meets monthly to make decisions concerning raw materials, in-process, and finished goods inventories. They work within the standards set at the division level.

The plant purchasing agent controls raw material inventory. Each month he makes up a Raw Material Inventory Analysis (see cut) in which he compares his raw material inventory to the standards. He sends a copy of the analysis to the division purchasing agent, who in turn, forwards it to Will Roy in corporate purchasing.

"I work through the division purchasing agents," says Roy, "If

Purchasing controls inventory at Rheem Manufacturing. Reviewing steel inventories at Rheem's Fullerton (Calif.) plant are Plant Purchasing Agent L. B. Hoagland (left) and Material Control Supervisor J. E. Durand.



Purchasing's Big Role at



RAW MATERIAL INVENTORY ANALYSIS

(1)	(2)	STEEL				ALL OTHER RAW MATERI			Actual all other Inv. Nov. 30th
		(3) % of Steel consump- tion to sales (or con- sumption)	(4) Est. \$ con- sumption of steel	(5) Std. Steel Inv. 150% of (4) for Eastern & 200% for Western Pts.	(6) Act. Steel Inv. Nov. 30th	(7) % of all other con- sumption to sales (or con- sumption)	(8) Est. \$ consump- tion of all other	(9) Std. All other Inv. 150% of (8)	
Department	Est. \$ Gross Sales (or consumption) - DECEMBER-								
Barrel	368,000	50	184,000	276,000	304,355	9	33,000	50,000	50,226
Pail	108,000	39	42,000	63,000	99,029	10	11,000	17,000	47,815
Grease Drum	45,000	37	17,000	25,000	47,459	14	6,000	9,000	4,063
Heater	610,000	5	31,000	46,000	202,300	29	177,000	265,000	351,559
Transfer	197,000								
Boiler	340,000	36	122,000	184,000	510,214	12	41,000	61,000	60,104
Sales	143,000								
All Trans.									
Galvanizing - To Boiler	40,000	--	-----	-----	-----	45	18,000 <small>(30 days on Zinc)</small>	18,000	35,070
TOTAL	<u>1,511,000</u>		<u>396,000</u>	<u>594,000</u>	<u>1,163,357</u>		<u>286,000</u>	<u>420,000</u>	<u>548,837</u>

This monthly analysis shows how actual raw material inventories compare with standard. It is prepared by each Rheem plant P.A.

COMMITMENT LEDGER FOR FEBRUARY 15									Buying Days 21
MATERIALS OTHER THAN STEEL									
*1 TOTAL TARGETS	11500	2300	15400	60500	39345	1000	23000	5600	1810
*2 ADVANCE RELEASES	5098	1868	9270	53480	34199	585	6565	4610	1807
*3 RELEASES TO DATE	7709	1868	9393	60868	36729	585	26545	4980	2429
*4 TARGETS TO DATE	8500	2100	12500	57200	36700	800	15200	5100	1810

Raw material commitments are controlled at each Rheem plant with this form which compares material required for the month with material already on-hand or on-order.

a plant's analysis shows that raw material inventory levels are too far from standard, I point this out to the division purchasing agent. It's up to him to get after the plant purchasing agent."

To help keep his raw material near standard, the plant purchasing agent uses a commitment ledger (see cut). The ledger shows how raw material commitments to date compare with the maximum amount of material needed during the month to bring inventory levels back to standard.

As Roy points out, "control of

commitments is the first step in controlling inventory."

Inventory Report

Each month Roy prepares an inventory report for the company's executive committee. He indicates inventory levels for both the individual divisions and the company as a whole, broken down into raw material, in-process, finished goods, and total inventory. He compares actual inventory levels with standards.

"While we keep close tabs on the total dollar investment in raw

material inventory," says Roy, "it's equally important to keep this inventory in balance. All items in inventory should support the same amount of unit production. This is especially important when sales are declining when it is occasionally necessary to purchase additional material to balance out the inventory, even though total inventory was being reduced. Balanced inventories are also important at times of prolonged strikes or disastrous conditions which may cut off the flow of raw materials."

Three-Point Program Cuts Obsolescence 75%

CORPORATE PURCHASING at Rheem started its present obsolescence control program in early 1956. At that time, obsolete material in inventory amounted to over \$1,500,000. By May 1958, obsolete stocks had been cut to \$250,000.

"There's nothing complicated about the way we keep obsolescent stocks down," says Will Roy, corporate purchasing's staff assistant for inventory. "We have a three phase program: prevention, reporting, and liquidation. Prevention, of course, is our first line of defense against obsolescence. It must usually come at the design stage."

Here's how Rheem prevents materials from becoming obsolescent:

When design changes are scheduled, purchasing checks the in-

ventory and on-order position of each item to be obsoleted. Tight control then assures nearly complete utilization of the material prior to the design change.

A company-wide effort is also made to use the material. Each plant purchasing agent makes a list of the items to be obsoleted and distributes it to all other plant P.A.'s. As a result, much material is disposed of through inter-plant sales. The division purchasing office of the selling plant acts as a clearing house for such sales.

When changes are made in customer designed products, a list of items to be obsoleted goes to the sales department. By discussing the situation with the customer, sales can sometimes have the design change delayed long enough to prevent obsolescence.

When new designs are on the boards, purchasing works closely with engineering to use off-the-shelf items as much as possible. Then in building up inventories to support the new designs, it tries to provide adequate inventories while still minimizing the danger of obsolescence.

"In spite of our best efforts at prevention," says Roy, "some obsolete inventories are still generated." Therefore, each plant purchasing agent makes a quarterly report on two types of inventory: 1.) obsolete; and 2.) dormant (i.e. inventory which laid idle during the quarter but which is not yet obsolete.)

Plans to dispose of the obsolete inventory are recorded in the remarks column of the report. The potential danger of dormant inventories becoming obsolete is analyzed.

Liquidating Inventories

Plant purchasing agents are responsible for keeping inventories clean and current. Says Roy: "In planning an organized approach to cleaning house on obsolete and dormant inventory, the plant purchasing agent has an opportunity to exercise real ingenuity."

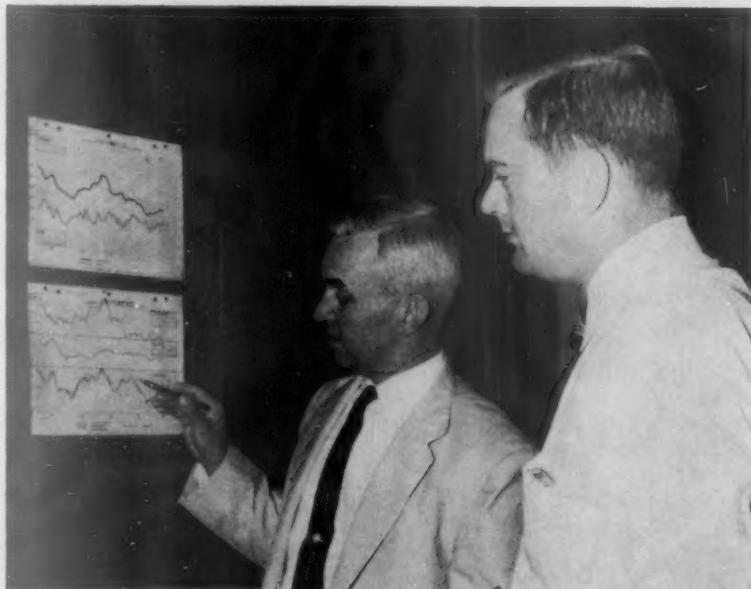
Best house cleaning results have been obtained by those plant purchasing agents who hold conferences with responsible people from other departments such as production, engineering, and sales. At these meetings, each item on the quarterly report is studied. Responsibility for action on each item is specifically assigned.

"Through inter-department cooperation," says Roy, "it's sometimes possible to use obsolete inventory in other products within the plant." Sales, for example, has on occasion gone to customers and obtained permission to ship products using obsolete special parts.

"With shelf items," says Roy, "obsolescence is less of a problem. Our regular suppliers will quite often permit their return at little or no cost to us."

Inter-Plant Sales

Each plant purchasing agent analyzes the reports of obsolete and dormant inventories received from other plants. Items in cur-



Key man in the Rheem purchasing organization is the plant purchasing agent. Here, Walter Moore, P. A. of Rheem's Sparrows Point plant, discusses inventory plans with Plant Manager Harry Halvorson.

rent use by the plant are cross-referenced to material control records for possible use. An inter-plant sale is then negotiated when there is a requirement for an item surplus at another plant.

On inter-plant sales the purchasing plant pays only its normal laid-down cost for the material. The selling plant can accept or reject the sale at this price.

After all possibilities for disposition have been studied, a report is made of the book value of the obsolete inventory, the expected recovery and resultant write-off. The report goes to the plant manager, division purchasing agent, and corporate purchasing.

The plant manager must approve disposition of all inventories at a loss. He must hold losses within an amount approved by the division office. Losses above \$12,500 per quarter require the approval of corporate management.

When the plant purchasing agent gets write-off approval, he:

1. Gives detailed instructions for the disposition of each item to the material control supervisor.
 2. Releases for shipment items being sold to other Rheem plants, returned to vendors, or being sold for scrap.
 3. Has material control issue requisitions from stores, move the material out, and mark the card record to show date of last withdrawal and the disposition made.

Purchasing's Big Role at



Prevention is Rheem's first line of defense against obsolescence. Here F. Vern Gust, (left) Chicago plant purchasing agent, Home Products Division, and Carl H. Eifert, Home Products Division purchasing agent discuss ways to insure utilization of a part prior to a design change which will obsolete it.

Plant purchasing agents submit this report of obsolete and dormant inventory each quarter. Plans for the disposition of the obsolete inventory are shown in the remarks column.

P.A.'s Take Lead in Plantwide Value Analysis

YOU GET far better results with an organized effort and set goals than with people working on their own. That's the principle behind Rheem's value analysis program.

Here is how the principle is applied:

Each Rheem plant has a value analysis team. The plant purchasing agent is chairman. Other members of the team usually include the production supervisor, project engineer, industrial engineer, and cost accountant. The team meets every two weeks.

At each meeting, projects, which have cost reduction possibilities, are selected for discussion at the following meeting. Prior to the meeting, a material analysis form (see cut) is filled out for each of these projects. Completed forms go to all members of the team, so everyone gets pertinent information about each project before discussion begins. Team members study the forms and then bring their ideas to the meeting.

If a project shows potential after it has been discussed, the plant purchasing agent assigns it to a member of the team who follows through on the project. When it's completed, he reports on a special form (see cut). This report, plus minutes of each meeting, go to other plants so they can take advantage of any applicable information.

Ken Riha, corporate purchasing's staff assistant for value analysis, coordinates the value analysis program among the divisions.

Well Designed Forms Help Make Value Projects Successful

Form VA-2

RHEEM MANUFACTURING COMPANY		Date _____															
Plant	Department																
COMPLETED VALUE ANALYSIS PROJECT																	
PROJECT # _____																	
Part _____	End Product _____																
Print No. _____	Quantity Per Unit _____																
Former Supplier _____	Now Source _____																
Former Procedure		New Procedure															
<table border="1"> <tr> <th>Summary Per C</th> <th>Material</th> <th>Labor</th> <th>Overshead</th> <th>Total</th> </tr> <tr> <td>Former Cost:</td> <td>\$</td> <td>\$</td> <td>\$</td> <td>\$</td> </tr> <tr> <td>New Cost:</td> <td>\$</td> <td>\$</td> <td>\$</td> <td>\$</td> </tr> </table>			Summary Per C	Material	Labor	Overshead	Total	Former Cost:	\$	\$	\$	\$	New Cost:	\$	\$	\$	\$
Summary Per C	Material	Labor	Overshead	Total													
Former Cost:	\$	\$	\$	\$													
New Cost:	\$	\$	\$	\$													
Savings Per C \$ _____ Est'd. Quantity Per Year _____ Est'd. Annual Savings \$ _____																	
Testing Required: _____																	
Action _____ Date Into Production _____																	

Completed value analysis projects are reported on this form. The report is distributed to other Rheem plants so that they can take advantage of any applicable information.

Form VA-1

RHEEM MANUFACTURING COMPANY		Date _____
MATERIAL ANALYSIS FORM		
Item Description	Plant	
End Product		
Suppliers		
1. _____	Price	
2. _____		
3. _____		
Cost Analysis		
Annual Consumption		
Consuming Plants	Unit Cost	
		Annual Cost
Description of Product		

Form VA-3

MONTHLY VALUE ANALYSIS REPORT - COMPLETED PROJECTS									
RHEEM	Plant	Period Ending _____							
Project No.	Date Initiated	Date Com-pleted	Date into Pro-duction	Actual Savings Per Unit	Est. Annual Quantity	Savings to be Realized Bal. this Yr	Est. Cost of Annual Installing Project	Total Savings for this Year	Total Annual

Using this form, plant purchasing agents report on value analysis projects completed during the month. The division purchasing agent decides which projects qualify for value analysis savings.

One phase of his work is setting division value analysis goals. "Human nature what it is," says Riha, "you accomplish more with predetermined goals."

Goals are based on potential savings. "Take the container division," explains Riha. "It has just five basic commodities. Thus its savings potential isn't as high as some of the other divisions, and its goal is relatively lower."

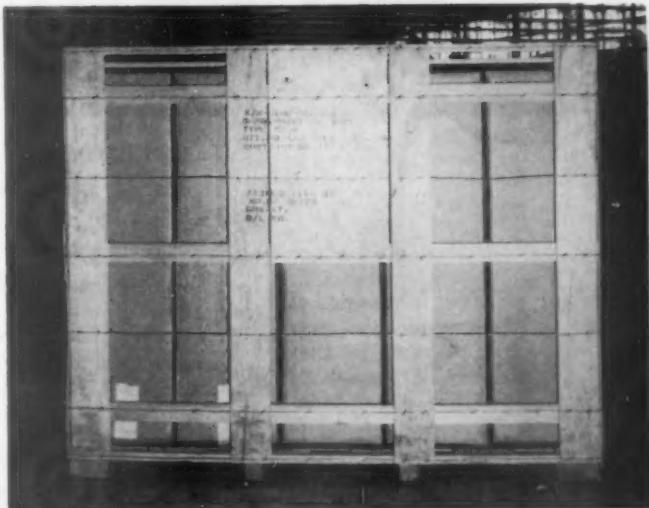
Division purchasing agents spearhead achievement of value analysis goals at the plant level. Each plant submits a report (see cut) of projects completed during the month. The division purchasing agent decides which projects qualify for value analysis savings.

"We report our value analysis savings in a conservative manner," says Riha. "Our management isn't interested in ghost savings. Savings reported must have factual proof to back them up."

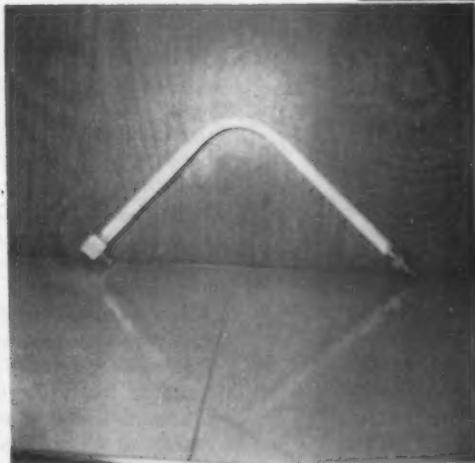
Purchasing's Big Role at



Three Examples of Successful Value Analysis . . .



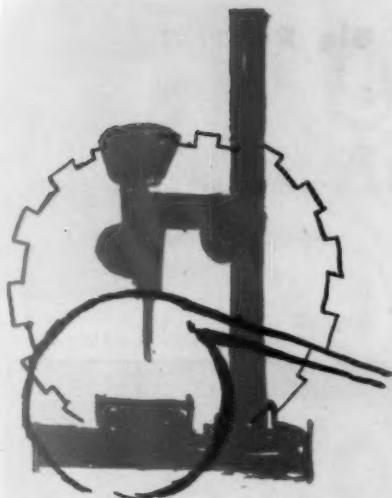
1. Palletizing to Wire Pack. Formerly, shipping containers were palletized 10 units to a pallet, using a V board insert and strapping. Change to a 20 unit wirepack using a pressed fiber insert which eliminates strapping resulted in a saving of \$1.14 per unit.



3. Four Parts to Two Parts. This gas connection between the thermostat and burner of a gas water heater originally consisted of a piece of $\frac{3}{8}$ " black pipe, bent, and a three piece brass union assembly. Redesigning to use $\frac{1}{2}$ " O.D. x $.035$ " wall steel tubing and $\frac{1}{2}$ " inverted flare unit produced a saving of \$.29 per unit.

2. Anode Recasting Eliminated. Formerly about 100,000 used nickel anodes per year were shipped across the country for recasting into new anodes. Now the eroded anodes go into a plating basket and are consumed when current is applied through carbon contact anodes within the baskets. Total savings: \$21,000 per year.





What the P.A. Should Know

About Cold Heading

An increasingly popular process turns out low cost parts at high speeds. It also offers definite strength and finish advantages. But it has limitations—particularly in respect to size and shapes that can be produced.

By T. C. DuMond

This is the eleventh in a series of articles on the technical aspects of purchasing. The material that will be presented is meant to provide a "refresher course" for experienced buyers and basic instruction for trainees or buyers new to specific commodities. Mr. DuMond is the author of the well-known book, "Fabricated Materials and Parts" (Reinhold Publishing Corp., New York). A mechanical engineer, he has spent many years in technical writing and editing. He has published two other books on engineering materials and fabricated shapes.

COLD HEADING is a production method closely related to upset forging and is used primarily to make small metal parts. As the name infers, work is done on unheated metals and it is here that the two processes differ most drastically.

Cold heading was originally developed to produce fastening devices such as screws, bolts and rivets. It is now used to make many other parts having contours similar to these.

The range of materials which can be made into cold headed parts is somewhat limited. This is

because the process has difficulty handling extremely soft or extremely hard materials.

Some screw machine parts have been converted to the cold heading process with a substantial reduction in cost and with quality nearly on a par. Some types of parts now made by cold heading are drawer pulls, electrical terminals, transformer studs, anti-friction balls and rollers, capacitor plates, automotive and business machine parts, studs, levers, shafts, spacers and a myriad of special fasteners.

The Process

Cold headed parts are made from wire or bar stock up to 1 inch in diameter. The raw stock is fed through one end of the cold heading machine and held in a die with one end protruding. The protruding portion of the blank is then mushroomed, to fill the open portion of the die, through the force of a heading hammer of correspondingly proper shape. The shape develops by the metal filling the void between the die and hammer faces. When relatively complex shapes are being formed, the blank might be struck more than one blow by a series of hammers, or it might be shifted to one or more additional dies.

In addition to providing heads at the ends of blanks, the process can be used equally well to form collars in the mid-sections of parts.

Cold headers resemble punch presses which have been laid on their sides. Their operation is entirely automatic. Blanks of the proper size are automatically cut and positioned in the die. When forming is completed, parts are ejected from the machine. Machines designed for this work are capable of sustained high speed operation.

Forming is usually completed with one blow of the heading hammer, but some shapes require two blows. When more severe deformation is required, the blank is shifted to a new set of dies and then forming is completed. Of course, as the number of steps increases so does the cost, because of added die costs and reduced rates of production.

Parts formed by cold heading usually require one or more secondary operations. For example, extruding might be used to provide small shank diameters; hex, square and special shapes of heads are attained by trimming by means of a punch; threads are usually provided by a thread rolling operation.

Cost Factors

Because the operation is almost completely automatic, cold heading provides parts at extremely low cost. There are several other factors, not the least of which is the high potential rate of production. An output of 4,800 parts per hour is not rare or unusual. Here

are some of the other cost elements.

Materials are relatively low in cost, primarily because the extremely expensive materials are not suitable for cold heading.

Dies are comparatively simple and consequently less expensive than for other forming processes. However, as tolerance limits become closer or complexity increases, die costs mount rapidly.

Labor costs, particularly for direct labor, are extremely low. Where desirable one man can handle the operation of an entire battery of machines.

Finishing costs are usually quite low. Special wire with a superior finish is used in cold heading and there are not many sources of dirt in the cold process. When you have to grind parts to reach higher accuracies or finer finishes it's natural to expect higher costs.

Scrap loss is virtually nonexistent in the cold heading process. Blanks are cut to exact length to provide final dimensions after forming. The only scrap likely is in any secondary trimming operation.

Advantages and Limitations

As is true of all other metal forming processes, cold heading has its strong points and its weaknesses. Most of the limitations of cold heading are concerned with size and shape of the parts produced. Here, in summary, are the most important factors to consider in investigating the suitability of cold headed parts.

Advantages:

1. In the cold heading operation, grains in the metal are fanned out in the direction of deformation to provide added strength.
2. Alloys used for cold headed parts are usually tough and ductile and inherently resist cracking.
3. Cold forming generally results in a better surface finish than does hot forming.
4. The high materials utilization factor of the process helps keep costs low.
5. As required by the process, parts are formed with fillets in corners. These fillets

add to the strength of the parts.

6. Cold heading is one of the fastest metal forming processes. The high rate of output and low direct labor requirements provide parts at extremely low cost.

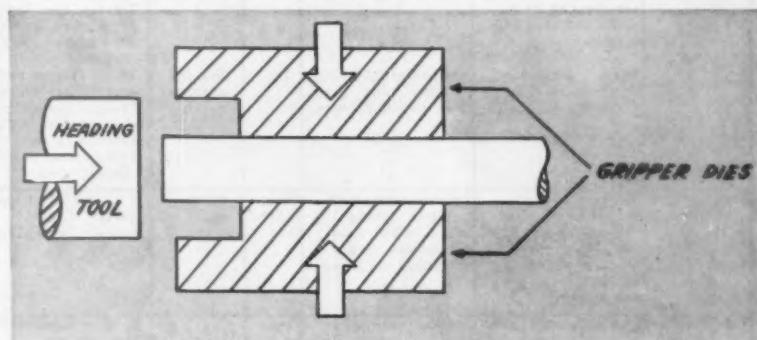
There are these limiting factors:

1. Shapes produced are restricted to relatively simple contours which are essentially cylindrical and relatively symmetrical.
2. The amount of deformation possible in cold working is limited. Where consider-

of scale and surface inclusions which would damage dies and reduce their useful lives considerably.

Ideally, a material used for cold headed parts should be ductile, have good shear strength and a low work-hardening rate. Hard materials will crack under impact of the heading hammer while soft materials are likely to become spongy and stick in the dies.

Among the materials most widely used for cold headed parts are low and medium carbon steels, low alloy steels, several grades of stainless steel, alumin-



This schematic sketch shows the principle of operation of a cold heading machine. After being formed, parts are ejected from the dies and the operation repeated.

able deformation is required several sets of dies might be required and parts must be annealed between operations.

3. Internal stresses are likely to be set up in cold headed parts. These can be removed by a subsequent annealing treatment.
4. Capacity of machines restricts parts to those of about 1 inch in diameter and 6 inches in length. Special machines extend these dimensional limits, but they are not generally available.

Materials Used

Many commonly used metals are suitable for fabrication into cold headed parts. The metal is generally supplied in coils of wire specially produced for cold heading machines. The special quality pertains particularly to the wire finish. The material must be free

um alloys, copper alloys and nickel alloys. Not all alloys in these groups are usable, but representative materials are available in each.

Dimensions and Tolerances

As indicated previously, the maximum size of cold headed parts is limited to that which can be obtained by forming a 1 inch diameter wire. At the lower extreme, parts as small as 1/16 inch can be formed. Maximum lengths produced on standard machine are about 6 inches. Head heights are generally in the range of one-quarter to three-quarters of the wire thickness.

Dimensional tolerances on cold head parts vary with the dimension involved. For example, tolerances of plus or minus 0.002 inch can be held on shank diameters, although plus or minus 0.003 inch is more reasonable. Heads can be formed to within plus or

(Please turn to page 150)

Transp. Media	Description	Application	Can Be Traced	Can Be Expedited	Cost Comparison	Remarks
Carload and Truckload	Full rail car or trailer.	Where quantity is sufficient to warrant. (Differs with product)	Yes	Yes (in advance)	Cheapest Method	Total charges depend upon minimum weight required, routing used, and many other factors. CONTACT TRAFFIC DEPARTMENT for best method.
Truck	Motor Truck	For all shipments over 50 lbs. not requiring emergency Air Service.	Yes	Yes (in advance)	Most economical method of shipping over 50 lbs.	Recommend truck routings when single line service is available
Freight Forwarder	Truck pick-up for assembly into carloads, includes truck del'y. at destination.	For all shipments over 50 lbs. not requiring emergency Air Service. Forwarder usually on long haul.	Yes	Yes (in advance)	Most economical method of shipping over 50 lbs.	Superior to motor truck service in many specific cases. Should never be used on shipments over 10,000 lbs. without con- sulting Traffic Department.
Railway Express	Freight handled by Express Company on passenger trains. Includes pick-up and delivery.	To or from out-of- way points. Also between large cities when expedited ser- vice is required	Very Diffi- cult	Diffi- cult	Generally cheapest under 50 lbs.	Inferior to truck service in many cases. (CONTACT TRAFFIC DEPARTMENT)
Air Freight	No. 1 Regular passenger airlines which also handle air freight up to a limited size and weight.	Rush shipments over 20 lbs. Usually as fast as Air Express.	Yes	Yes (in advance)	2½ to 3 times more costly than truck or freight forwarder. Cheaper than Railway Express in many cases. (Check with Traffic Department)	In rare cases may be delayed to give priority to mail or Air Express.
	No. 2 Cargo air carriers handling freight only.	Rush shipments over 20 lbs. Usually as fast as Air Express.	Yes	Yes (in advance)	2½ to 3 times more costly than truck or freight forwarder. Cheaper than Railway Express in many cases. (Check with Traffic Department)	Good service between major cities; only one flight daily into Columbus.
Air Express	Complete pick-up and delivery ser- vice using all commercial air- lines on shipments of limited size and weight.	Extreme emergency only! Of little value to and from points not on a scheduled airline.	Very Diffi- cult	Diffi- cult	3 to 4 times more costly than Air Freight generally.	We have no choice of airlines used or routings chosen by Express Company. Air Freight service is comparable in most cases. (CONTACT TRAFFIC DEPARTMENT)
Air Freight Forwarder	Brokerage service using all commer- cial airlines and surface transporta- tion when necessary.	Extreme emergency only!	Yes	Yes (in advance)	Usually more costly than Air Express (except over 100 lbs.) ALWAYS MORE COSTLY THAN AIR FREIGHT.	Cost is prohibitive except in cases when a few hours transit time differential is vital. (CONTACT TRAFFIC DEPARTMENT)
Parcel Post	4th Class regular mail.	Up to 20 lbs. when transit time is not important. 40 lbs. up to 150 miles. Very small rush shipments!	No	No	Cheaper than Railway Express	Generally not advisable except on very small packages on which delivery is not urgent.
	4th class air mail		No	No	Approximate to Air Express up to 5 lbs.	Generally not advisable except on very small packages on which delivery is not urgent.

John H. Campbell, director of material at North American, Columbus has kindly furnished Purchasing Magazine with 100 copies of this Buyer's Traffic Guide. We will be pleased to send them to interested purchasing agents while the supply lasts. For your free copy write: Editorial Department, Purchasing Magazine, 205 East 42nd Street, New York 17, New York.

Convenient Traffic Guide

PURCHASING AND traffic are a great team for controlling costs. A good example is the Traffic Routing Guide of North American Aviation's Columbus Division. Pages are alphabetically arranged by states. Each page has four headings: geographical location of purchase, parcel post weight limit, routing (transportation company), and approximate transit time.

A traffic analyst has a master copy. All new information comes to him and he periodically issues supplements. The complete guide,

with all latest changes, is re-issued once a year. Purchasing and traffic always work out routing changes together.

The guide gives commonly used less-truckload and less-carload routings. A separate page in the front of the book also gives general information on eight different transportation services. Here, at a glance, the buyer can find out what the best method of transportation should be considering weight, cost, urgency, and possible need for tracing.

DO YOU have the problem of regularly needing rush deliveries from one supplier? So does Chas. Pfizer & Co., Brooklyn, N.Y., drug and chemical house. Only for Pfizer the problem is worse than for most companies.

Because of the nature of its business, Pfizer must:

(1) Get immediate delivery on its drug labels. Many of these products have an expiration date, so the sooner Pfizer can get its drugs on the market the better.

(2) Despite the emphasis on speed, the drug labels have to be accurate. A mistake might be dangerous—is certain to be costly.

Pfizer solved this difficult purchasing problem with a unique ordering system. Previously, it used the telephone to place its rush orders for drug labels. But no matter how carefully the orders were phoned in, there were still too many mistakes on the labels. This meant that the labels had to be printed over again.

Order Within Seconds

Now, the phone order has been eliminated. Instead Pfizer and its label supplier, Arlington Press, use a Western Union Intra-Fax. This is a machine that both sends and receives messages electrically.

When labels are needed, all Pfizer purchasing has to do is to rip off the top copy of the purchase order and place it on the Intra-Fax. Seconds later the supplier has the order and can start work.

Use of the Intra-Fax has cut delivery time drastically. If necessary, Pfizer can place a label order in the morning and get delivery in the afternoon.

But that's only one advantage of the Intra-Fax system. It's fast, but it's also safe because the supplier can copy the label directly from the Intra-Fax purchase order rather than working from notes that were jotted down when the orders were phoned in.

Cost of the Intra-Fax is \$200 a month—\$100 for Pfizer and \$100 for Arlington. But it's money well

Speeding Delivery Of Small Orders

Purchasing often has to get small orders from vendor to plant within a day. Here's a system used by one company for fast, accurate deliveries.



A purchase order is fed into an Intra-Fax at Pfizer's Brooklyn plant. Moments later, the supplier has the order and can begin filling it.

spent. As Pfizer's Director of Purchases Frank D'Antonio points out: "We needed a system that would be fast and accurate. The Intra-Fax is foolproof."

Combine P.O. and Requisition

As another step in insuring the accuracy of its drug labels, Pfizer has combined its purchase requisition with the purchase order. This means there is only one typing operation. The chance for typing

errors is reduced to a minimum.

The second copy of the purchase order is signed by the buyer and mailed to the vendor as confirmation of the Intra-Fax order. Usually, however, delivery has been made by the time the supplier gets the P.O. Other copies of the seven-part purchase order receive normal distribution within the company—to department files, receiving, accounting and stores.

A Punched Code System For

Total purchases from one vendor and annual costs of a particular commodity are valuable bits of information for P.A.'s to have at their fingertips. Here's how one company set up a code system that pays for itself many times each year.

By John Van De Water

General Buyer, Worthington Corporation

HOW OFTEN have you been asked, "How much business do we do with the XYZ Company?" Or, how many people want to know: "What do you spend each year for cap screws?"

To answer these questions, statistics are needed. The number and kind of statistics you keep will depend on:

- What you need to know
- How detailed the data should be
- How much you can afford to spend

At Worthington, some form of purchasing statistics has been maintained for many years. Eight years ago we looked at our figures critically to determine just what we expected from them and set up Division, Vendor, and commodity codes. Recently we thoroughly overhauled our vendor and commodity code books in the light of our experience.

This experience has shown that only two points of information really matter: how much business is placed with each vendor and how much is spent for each commodity. These figures are now made available annually for each division as well as for the entire corporation.

Punched Cards

We realized that the volume of data which would result could be handled conveniently only by a

punched card system. This meant our information had to be coded. Originally the code books were typed by hand on multilith plates and then duplicated. But when we revised our commodity and vendor codes a few months ago we transferred the data to punched cards. Changes and additions are now made just by preparing a new card. Whenever new code books are required, the cards can be sorted easily and new plates printed by machine.

Each Worthington division has a two-digit code number. And every vendor has a basic four-digit number with two additional digits for subsidiaries. For example, we assign the number 1014 to the Allied Chemical and Dye Corporation. The Semet-Solvay Division carries 1014-01, the General Chemical Division 1014-02, etc. The vendor's subsidiaries or divisions are also listed under their own names in the proper alphabetical location.

Only those vendors who get more than \$2000 worth of annual business receive a code number. Others are lumped together in a miscellaneous category coded 999-999. Because of buying practices and corporate changes, the vendor code has to be reviewed periodically.

When a buyer at any of our plants wishes to place an order with a new vendor from whom he

expects to buy over \$2000 annually, he obtains a code number from headquarters. Numbers are dropped when the vendor's volume has gone below the minimum for two or three years. It is important not to give these inactive numbers to other vendors. To avoid later confusion, a given number must refer to only one vendor, whether active at the time or not.

Commodity Codes

The commodity code consists of five digits. The first digits represent the basic class of material, while the others show the specific item within that class. Thus, metals are class 01-000—but 01-065 designates hot-rolled steel bars; 01-090, pig iron; and 01-504, Babbitt metal.

There are twenty-six classes of materials in the code. Odd numbered classes start with 01-000 and are for production materials. Even numbered classes start with 50-000 and are for capital equipment, tools, and supplies. A basic numerical list is maintained by the general purchasing department, but the code book is arranged alphabetically for easy reference.

The vendor and commodity code books are distributed to all purchasing managers and buyers throughout the corporation. The buyer enters the proper codes for

Vendors and Commodities

vendors and commodities in designated spaces on the purchase order when it is processed. After receiving the invoice, the division accounting department enters four items on an IBM card: its own division number, the vendor and commodity code numbers from a copy of the purchase order, and the total net billing from the invoice. The cards are sent periodically to headquarters for punching.

At the end of the year, the punched cards are sorted and printed as two consolidated reports: a vendor report and a com-

modity report. Individual reports are made up for each Worthington division.

The vendor report is arranged numerically by supplier. Each division's purchases from that vendor is also recorded. By looking up a given vendor code, the value of each division's purchases for the year can be read along with the company total.

The consolidated commodity report is arranged numerically by commodity number. From this we can quickly determine what the separate divisions and the corporation as a whole spend yearly

for each coded commodity. And as a bonus, this system also shows all the vendor sources for each commodity.

During 1957, we processed about 250,000 cards covering total purchases of over \$100 million. It is difficult to calculate the exact cost of a statistical system like this, since the operations are widely separated and some costs are hidden. However, we estimate it to be considerably less than 1/100 of 1% of the purchased volume or under \$10,000. The value of dependable statistics to any company, however, certainly exceeds this cost many times over.

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<small>IMPORTANT: THIS CONTRACT, AND ALL INVOICES FOR PAYMENT OF SAME, ARE SUBJECT TO CONDITIONS PRINTED ON REVERSE SIDE. INSERT WORTHINGTON CORPORATION'S PURCHASE ORDER NUMBER AND ALL PAPERS RELATING TO THIS ORDER AND INVOICES ARE TO BE SHIPPED WITH PURCHASER'S NAME AND WORTHINGTON ORDER NUMBER. THIS CONTRACT IS NOT VALID UNLESS ACCORDING TO THE TERMS OF THIS CONTRACT, WITH BILL OF LADING, EXPRESS RECEIPT AND BILLS FOR PREMIUM TRANSPORTATION CHARGES.</small>																																																																			
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Showing Buyers the Value Way

A keenly competitive economy is focusing more industrial attention on value analysis. Here are highlights of the Hotpoint Company's value analysis seminar.

By C. D. Francisco

"MORE VALUE for consumer and manufacturer!" With this keynote, the Hotpoint Company, Chicago, recently conducted its first full three-week Value Analysis Seminar program.

Ninety trainees, mostly supervisory personnel, came from the Home Laundry and Kitchen Appliances departments in Chicago, and the Kitchen Appliances department in Milwaukee. Participants from purchasing, engineering, manufacturing, marketing, finance and quality control departments developed more than 300 design and manufacturing ideas worth well over \$2 million.

Exemplifying the potential for individual self-development provided by value analysis training, three men—previously seminar-trained—produced and directed the outstanding program. Wayne Ruggles, Cal Henderson and Don Fink, co-managers of the seminar, are all full-time value specialists. They selected projects from areas considered weak in value, particularly challenging because of statements like, "you can't add any more value to that part."

In a relaxed atmosphere, completely away from the scene of everyday activity, the trainees set about learning how to develop skills they never knew existed. A hard-hitting program gave them the answers to such questions: "What is value analysis?" "How does it work?" "How does value analysis affect me?" "Why am I here?" They learned early in the program that their basic objective was to improve their "value-ability".

Introductory remarks were provocative. "You will develop a new perspective toward value," they were told, "through an intensive study of the value analysis techniques, and the application of these techniques on company products. The relationship of value analysis to all phases of business operations will be reviewed. In addition, specialty suppliers and company consultants will be available throughout the seminar to provide the latest information on costs, materials, products and processes for use in your quest for value.

"We ask that you bring an active, inquisitive and open mind, and allow us to prove that it is possible to obtain equal or better performance at substantially lower costs through the use of the philosophy, concepts and techniques of value analysis."

The seminar program covered the four areas in which value analysts work: integration, evaluation, consultation and education. Along with project studies

of company products, the training included 20 tested techniques including, "How to think creatively", "How to overcome roadblocks", "How to evaluate function", "How to use better human relations", and "How to use specialty products and materials."

New Perspective

Co-manager Ruggles emphasized that the seminar was held to give Hotpoint personnel a new perspective toward real appliance values, and was not a cost reduction program. "As new ideas are adopted", he said, "some substantial savings will undoubtedly result, but the main interest of the group is to design and produce appliances with better performance and higher quality; to give the consumer better value at lower cost."

An interesting highlight of the seminar was a talk by Elizabeth Sweeney Herbert, household equipment editor, McCall's magazine. From Washington, D. C., she spoke to the group via telephone



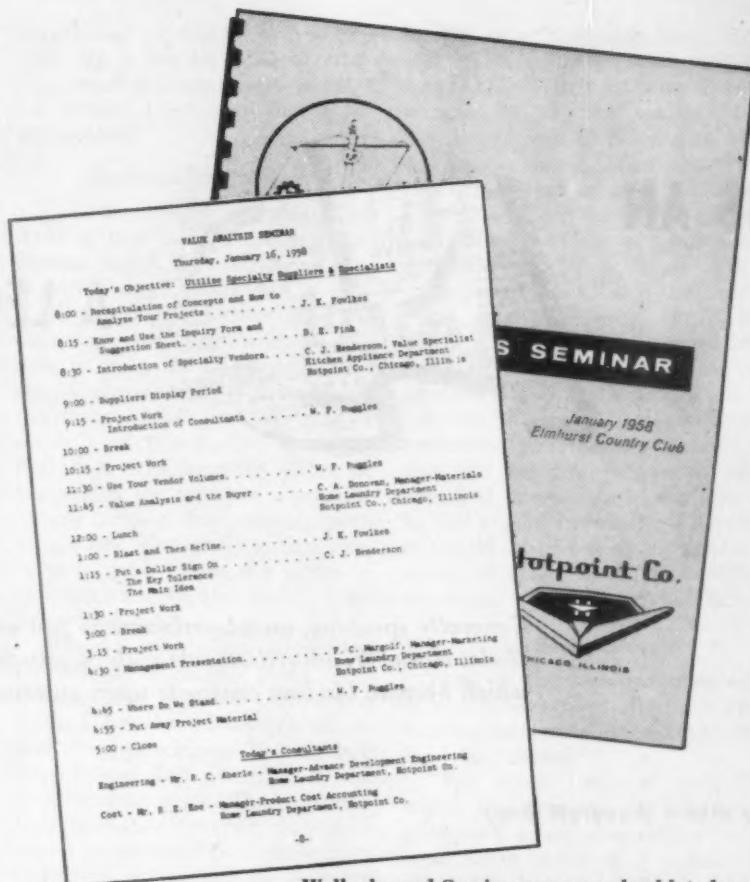
Group shows intense interest as they hear amazing results of value analysis accomplishments.

fed into loudspeaker equipment. Challenging the group to be more "woman-minded" in designing and producing appliances for the modern home, Mrs. Sweeney said, "Call women unpredictable or illogical if you like, but when today's homemaker goes shopping for a new kitchen or laundry appliance, she shops carefully for value, knows what she wants and exactly how much she is willing to pay for it."

Emphasizing top management's support and interest for the seminar, Hotpoint's president, John C. Sharp, and General Electric Vice President James C. Goss, were there to tell the group of the importance of value analysis in industry today. Mr. Sharp said that the principles of value analysis, if applied to all areas of business, could produce some startling results. Mr. Goss commented that "Values are changing constantly," and that "every minute of the day presents a new challenge to find the proper balance of values that will best satisfy the consumers' needs at a fair price to both consumer and manufacturer."

At the end of the seminar, participants from each project group made a presentation to management, showing their accomplishments during the intense training course. But these were not the same participants who had, three weeks before, asked "Why am I here?" These were men with new enthusiasm, new interest, and broader objectives.

This won't be the last value analysis seminar at Hotpoint. Not when they know that three value specialists can put together a pro-



Well-planned Seminar program booklet shows daily work schedule, objectives and subjects.

gram that will inspire 90 men to make comments like these:
(From an engineer) "It will be regrettable if this course is not made available to many others."
(From a manufacturing man) "Best attempt ever made in 10 years to improve cost by concrete creative thinking. The impact of the seminar has been terrific."
(From a design engineer) "This

is without a doubt the most tremendous endeavor with which I have ever had the opportunity to be associated. I am sincerely grateful for the opportunity of participating."

(From a buyer) "I believe value analysis applies to every function, be it financial, manufacturing, marketing, maintenance, engineering or purchasing."



Project group applies value analysis techniques to pump and motor assembly of Hotpoint clothes washer.



Search for value inspires project study on components. Consumers now get greater value.

IS AN



A LEGAL OFFER?

Generally speaking, an advertisement is just an invitation to trade. However, advertisements with certain terms are offers which become binding contracts upon customer acceptance.

By Albert Woodruff Gray

PUBLISHED in a newspaper in Minneapolis, Minnesota, was an advertisement listing goods, with, "Saturday, 9 A.M. Sharp. Merchandise worth \$100. First Come, First Served. \$1.00 Each." Offering a dollar at the time and date named in the advertisement, the first customer at the store that morning demanded the goods, which store refused to sell.⁽¹⁾

The incident was followed by a lawsuit in which the customer claimed damages for what he insisted was a breach of contract. In its defense the store contended that the newspaper advertisement offering these items of merchandise for sale at a named price was merely an offer which could be withdrawn without notice.

An advertiser, contended the

store, publishes in a newspaper that he has a certain quantity or quality of goods which he wishes to sell at specified prices and terms. Such advertisements are not offers which become contracts as soon as any person notifies the seller that he will take the goods or any part of them.

They are, argued the store in this action, merely invitations for an offer to sell on the terms stated and the offer of the buyer, when received may be either accepted or rejected. Therefore no contract exists until there has been an acceptance, not by the customer, but by the seller.

Invitations to Trade

Similar circumstances surrounded an occurrence of this sort in Georgia. An advertisement carried by a local newspaper named \$15.00 as the price of the articles to be sold. Through a mistake in the publication of this advertisement the price appeared, not as \$15.00 but \$5.00. Suit was



brought by the advertiser against the publisher in which damages were claimed on the ground that this advertiser had been compelled by reason of the error in the quoted price of this advertisement to make 48 sales at the price named with a consequent loss of \$10 on each sale.

In a denial of the advertiser's right to a recovery the Georgia court said, "A business advertisement published in newspapers and circulars sent out by mail or distributed by hand, stating that the advertiser has a certain quantity or quality of goods which he wants to dispose of at certain prices, is not an offer which becomes a contract as soon as any person to whose notice it might come, signifies his acceptance by notifying the other that he will take a certain quantity of them. It is a mere invitation to all persons who may read it that the advertiser is ready to receive offers for the goods at the prices stated."

Identify Product

Then of the circumstances of this particular case the court added, "In the instant case the advertisement specified no definite quantity of merchandise for sale though there was a more or less indefinite description of the qualities of the goods. The first essential of a sale is that there must be an identification of the thing sold. A general advertisement in a newspaper for the sale of an indefinite quantity of goods is a mere invitation to enter into a bargain rather than an offer."⁽²⁾

In New York a few years after this decision by the Georgia court a similar situation occurred. There a store advertised that it would sell, deliver and install for anyone who would purchase and pay for the same "well known standard makes of radio receivers at 25 percent to 50 percent reduction" from the advertised list prices. When a customer attempted to take advantage of this offer for the purchase of a radio, the store refused to sell. As in the Georgia case, the customer sued.

"This advertisement," said the court in that decision, "is nothing but an invitation to enter into negotiations and is not an offer

which may be turned into a contract by a person who signifies his intention to purchase some of the articles mentioned in the advertisement."

Contract Invitation

This the court supplemented with a quotation from a well-known legal text writer, "Frequently negotiations for a contract are begun between parties by general expressions of willingness to enter into a bargain upon stated terms and yet the natural construction of the words and conduct of the parties is rather that they are inviting offers or suggesting the terms of a possible future bargain than making positive offers. Especially is this likely to be true where the words in question are in the form of an advertisement.

"Thus if goods are advertised for sale at a certain price, it is not an offer and no contract is formed by the statement of an intending purchaser that he will take a specified quantity of the goods at that price. The construction is rather favored that such an advertisement is a mere invitation to enter into a bargain, rather than an offer."⁽³⁾

Another decision was referred to in support of the contention when an advertisement in a Milwaukee newspaper could not be made a binding contract enforceable against the advertiser upon the customer's acceptance. The case concerned a lawsuit in Ohio. The newspaper advertisement in this instance, carried an offer to sell an all electric sewing machine

for \$26 as a "Thursday Only Special." The value of the machine was \$175. When a woman attempted to buy the machine for \$26, the advertiser refused to sell.

Here, as in the other instances, the Ohio court refused to recognize this advertisement of goods and the offer to buy as a purchase contract.

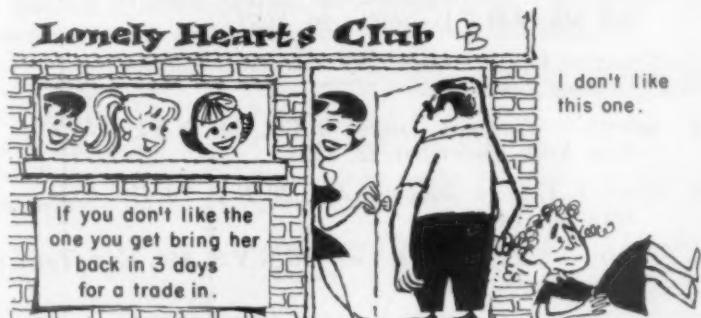
"It seems to us," said the court, "that this case may easily be determined on well-recognized principles. The first question to be determined is the proper character to be given the dealer's advertisement in the newspaper. It was not an offer made to any specified person but was made to the public generally. Thereby it would be properly designated as an offer which could be withdrawn at will without notice."

Definite Offer

Then of the familiar instances in which advertised offers become binding contracts on acceptance, the court added:

"The most frequent case in which an advertisement has been construed as an offer in the technical sense involves a published offer of a reward for the furnishing of certain information, a return of particular property or the doing of a certain act. In such case all that is necessary to confer the benefit demanded by the offeror is performance of the required act.

"The instant case is to be distinguished in that the electric sewing machine was not delivered and the fact that the seller refused to deliver the machine at



\$26 was information that the offer was withdrawn."⁽⁴⁾

The Minnesota court, in commenting on this decision, stated: "It is true that such an offer may be withdrawn before acceptance."

Changing Rule

However, the Minnesota court made a sharp departure from former doctrine which held that except in offers of rewards, an advertisement is not an offer to sell, but merely an invitation to deal. In ruling on a particular case, the Minnesota court pointed out that an advertisement can be regarded as a definite offer to sell. The court ruled as follows:

"There are numerous authorities which hold that a particular advertisement in a newspaper or circular letter relating to a sale of articles, may be construed by the court as constituting an offer, acceptance of which would complete a contract."

In support of this ruling that an advertisement is a legal offer the court cited a decision by a New York court many years ago. An old and well known soap manufacturer at that time had advertised that it would give premiums in return for coupons contained in the wrappers of its soap. Later when the holder of these coupons was refused the premiums the company had advertised, suit was brought for damages. In granting a judgment against the soap com-

pany the court in that case said,

"The first move must come from the advertiser and he has the right at any time to modify his offer in any particular through the same medium the original offer was made. He can protect himself by all kinds of restrictions or he can leave the offer wide open.

"Before a binding contract can be made the person acting under the offer must know of the offer and it is immaterial whether the advertiser knows that work has been done by anyone under any offer at any time.

"A binding contract is effected at the time the work is performed by the one taking advantage of the offer and the only thing then necessary is for the one who has done the work to bring his claim to the attention of the advertiser and he is then entitled to the rewards or premiums offered under the advertisement."⁽⁵⁾

Common Honesty

Another more recent decision was also followed as authority by the Minnesota court in its departure from the traditional interpretation of advertising as an invitation to trade or deal. An automobile sales agency in Baton Rouge, Louisiana had advertised in local newspapers, "Don't wait—Buy a 1954 Ford now. When the 1955 models come out we'll trade even for your '54. You pay

only sales tax and license fee. Your '55 Ford will be the same model, same body style, accessory group, etc. A sure thing for you—a gamble for us but we'll take it."

When one credulous customer took the 1954 car he had bought under the aegis of this advertisement and asked for the promised 1955 model in exchange, he was told the advertisement was not intended as an offer but merely an invitation to come in and bargain.

In its decision holding that the automobile sales company must perform the contract made by the advertisement as an offer and the acceptance of the customer, the Louisiana court said:

"If this sales company seriously argues that despite the plain wording of the advertised offer the company had absolutely no intention of making a bona fide offer but was merely intending to lure customers to its sales lot, it may be well to recall the expression of the Ohio Supreme Court in an almost identical factual situation, 'There is entirely too much disregard of law and truth in the business, social and political world of today. It is time to hold men to their primary engagement to tell the truth and observe the law of common honesty and fair dealing.'"⁽⁶⁾

On the authority of these two decisions, holding the store owner liable under a contract born of his advertisement and the acceptance of this customer the Minnesota court said in conclusion: "Whether in any individual instance a newspaper advertisement is an offer rather than an invitation to make an offer depends on the legal intention of the parties and the surrounding circumstances. We are of the view, on the facts before us, that the offer by the store owner of the sale of this merchandise was clear, definite and explicit and left nothing open for negotiation.

"This customer having successfully managed to be the first to appear at the seller's place of business to be served, as requested by the advertisement and having offered the stated price of the article, he was entitled to performance on the part of the advertiser."

REFERENCES

1. Lefkowitz v. Great Minneapolis Surplus Store, 86 N.W. 2d 689 Minnesota, December 20, 1957
2. Georgian Co. v. Bloom, 108 S.E. 813, Georgia, October 7, 1921
3. Lovett v. Frederick Loeser & Co., 207 N.Y.S. 753, New York, December 22, 1924
4. Craft v. Elder & Johnston Co., 38 N.E. 2d 416, Ohio, July 14, 1941
5. Payne v. Lantz Bros. & Co., 166 N.Y.S. 844, New York, September 6, 1916
6. Johnson v. Capital City Ford Co., 85 So. 2d 75, Louisiana, December 30, 1955



SLOW LEAK IN YOUR BUDGET?

Halt it with new "Rippletex" C-fold towels

Money dribbling away because your paper towels aren't earning their keep? With the new "Rippletex" C-fold towel now available in the famous Nibroc® line, you can switch to Nibroc and save money. Nibroc's perfect balance of absorbency, strength, softness, reduces waste—cuts cost-per-user—brings sharp savings in annual towel costs. Nibroc "Rippletex" C-fold towels in brilliant "White Magic" white are embossed for increased softness, greater bulk—better absorbency. They fit any C-fold cabinet. Mail the coupon today for samples and name of nearest distributor.

BROWN COMPANY

General Sales Offices: 150 Causeway St., Boston 14, Mass.

Mills: Berlin and Gorham, New Hampshire



Brown Company
150 Causeway St., Boston 14, Mass.

Please send me samples and complete information
on Nibroc "Rippletex" C-fold towels.

NAME _____

COMPANY _____

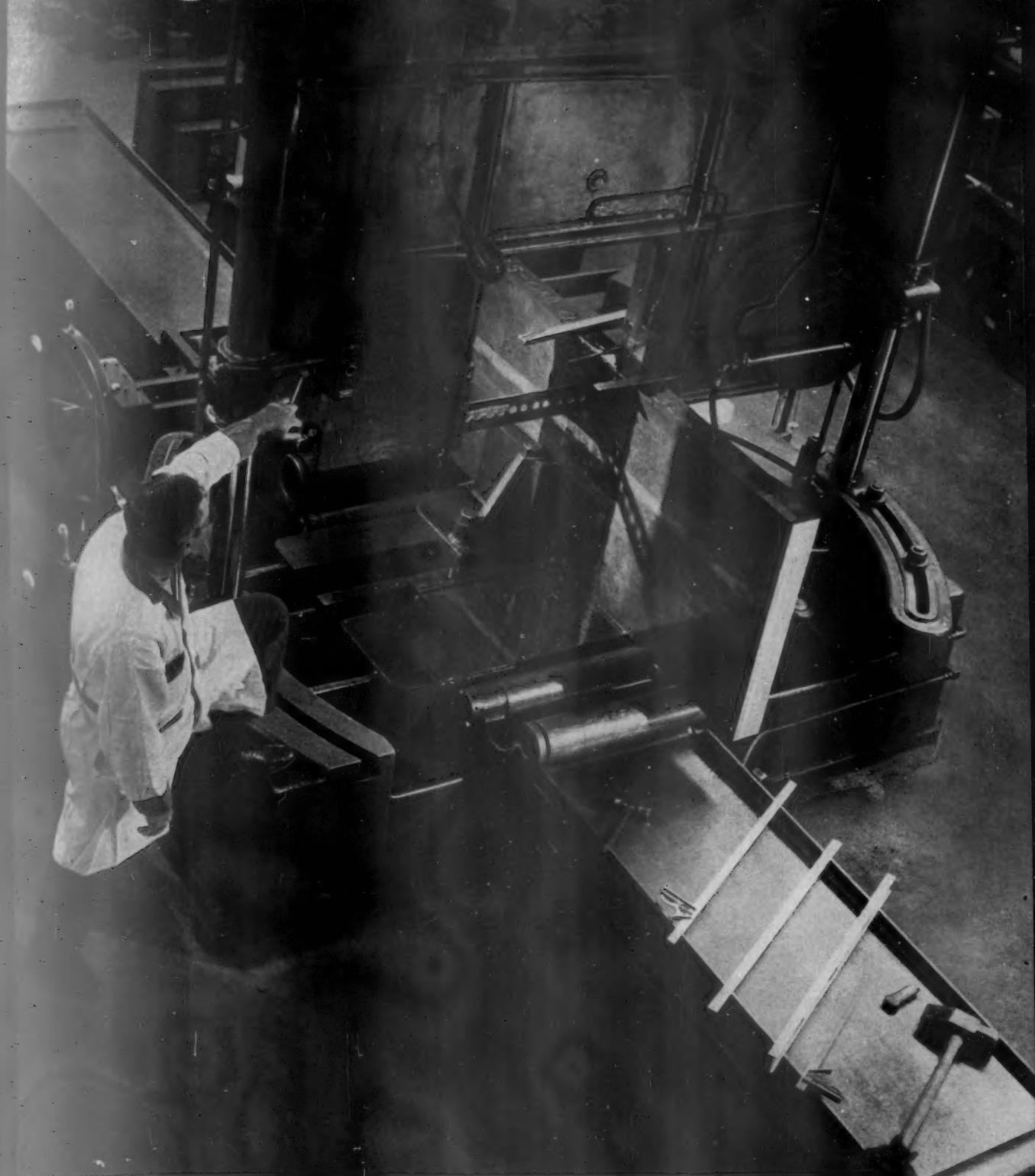
CITY _____ STATE _____

NIBROC TOWELS • NIBROC TISSUE • NIBROC CABINETS • NIBROC WIPERS

For More Information Write No. 206 on Inquiry Card—Page 32
SEPTEMBER 15, 1958

For More Information Write No. 207 on Inquiry Card—Page 32—
89

integrated CRUCIBLE steel service



The customer needed plastic mold steel cut to his specs as fast as he could get it. The Crucible warehouse confirmed his order, gave him immediate deliv-

ery because it had both the steel and the saw (big 24" x 42" hacksaws which can slice a 40" block in 4-4½ hours).

maintains a variety of local facilities for handling customers' special requirements

"We regularly rely on the Crucible warehouse's equipment. Why, it would take us all day to cut steels they can cut in minutes. We've tried to do these cutting jobs ourselves and, frankly, we lose money nearly every time."

This purchasing agent's words are probably typical because countless companies, all over the country, rely on the 27 local Crucible warehouses for handling their special needs. Unusual cutting of specialty steel grades and sizes is just an example. Or, if a warehouse can't handle extras, such as forging, grinding, machining, boring, polishing, etc. itself, it arranges to have them done conveniently and economically outside.

It's entirely possible that your plant has these facilities. Even so, it can pay you to find out what the local Crucible warehouse has to offer. As one materials buyer put it:

"We have a 'get to know the suppliers' policy. I've visited the Crucible warehouse personally and made a list of its equipment. Here it is—under 'Suppliers' Facilities.' Two weeks ago, when all our saws were tied up, we had the Crucible warehouse cut the steels. They did it immediately, so my list paid off."

All Crucible warehouses maintain stocks, services and facilities to serve you. If you'd like to know more about them, phone or visit the warehouse nearest you — *any time*. Its facilities and services are part of Crucible's integrated operation, from ore to mill and warehouse delivery to you. *Crucible Steel Company of America, Dept. PI 13, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*



MONTHLY STOCK LIST
Keep up-to-date on the specialty steels available—when they're available! Ask your local Crucible warehouse to send you its monthly stock list.



Customers' Master Files quickly give Inside Account Salesmen details on your receiving schedules and special requirements.



Inside Account Salesmen keep reference sources handy — give you fast breakdowns of analyses, or heat-treating, machining data.



Fleet of trucks and special delivery vehicles maintained at each warehouse ensure prompt, nearby deliveries.



Full stocks of specialty steels enable warehousemen to ready your order for shipment overnight — or earlier.

TOOL STEELS — Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollows, forgings and flat ground stocks

HIGH SPEED STEELS — Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS — Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS — Crucible Max-e® hexagons, plates and brake die steel

ALLOY STEELS — Bars, billets, strip and sheet
COLD ROLLED CARBON SPRING STEELS

DRILL STEELS — Wing or section twisted auger drill steels, hollow and solid drill steels

ALUMINUM EXTRUSION DIE STEELS

HOLLOW TOOL STEEL

WELDING AND HARD FACING ROD

PLASTIC MOLD STEELS

PERMANENT MAGNETS

— and many others

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton
Denver • Detroit • Grand Rapids • Harrison • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • New Haven • New York • Philadelphia
Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse
Tampa • Toledo • Toronto, Ont.

How Direct Service Motor Carriers Can Help P.A.'s

HERE are many ways a direct service motor carrier can help a purchasing agent cut costs. Unfortunately, the busy P.A. frequently fails to take advantage of these potential savings. As a refresher, here's a brief listing of some of the benefits a P.A. may be overlooking:

Reduced inventory. Direct service carriers in many cases can give overnight delivery. This means the purchasing agent can safely reduce his inventories. And, of course, overnight deliveries are a boon to companies with limited warehousing space.

Volume and TL discounts. Direct service makes it possible for companies to get bigger discounts on large-volume purchases. In addition, proper designation of

transportation can save a lot of money. Most P.A.'s know they get rate breaks when a trailer is full of one-stop merchandise. However, many of them fail to take advantage of it through careless specification of freight shipments.

Freight information. Purchasing agents can cut costs by taking advantage of traffic information available from a common motor carrier's traffic department. Carriers are able and anxious to give rate information. Too frequently purchasing agents make mistakes in reading traffic schedules. Often the schedules they have available are out-dated. Greater reliance on a carrier's traffic department can eliminate these problems.

Answers to traffic problems.

Purchasing agents can take advantage of the facilities and personnel of a direct service carrier. Practically all such carriers have capable, well-trained sales representatives schooled in the importance of servicing customers on inbound and outbound shipments, looking after and policing the service from time of pickup until delivery.

This, of course, permits the purchasing agent to spend more of his time on other pertinent matters more closely connected with his job. It's only natural that a carrier's representative talk up the virtues of their own firm, but they are usually quick to help by suggesting competitors, if their own operating rights and authorities restrict them from "delivering the goods."



Direct service common motor carriers offer many services to purchasing agents. Shown here is the dispatching center of Interstate Motor Freight System. Dispatchers can provide quick answers to a purchasing agent's motor traffic questions.

For More Information Write No. 208

on Inquiry Card—Page 32→

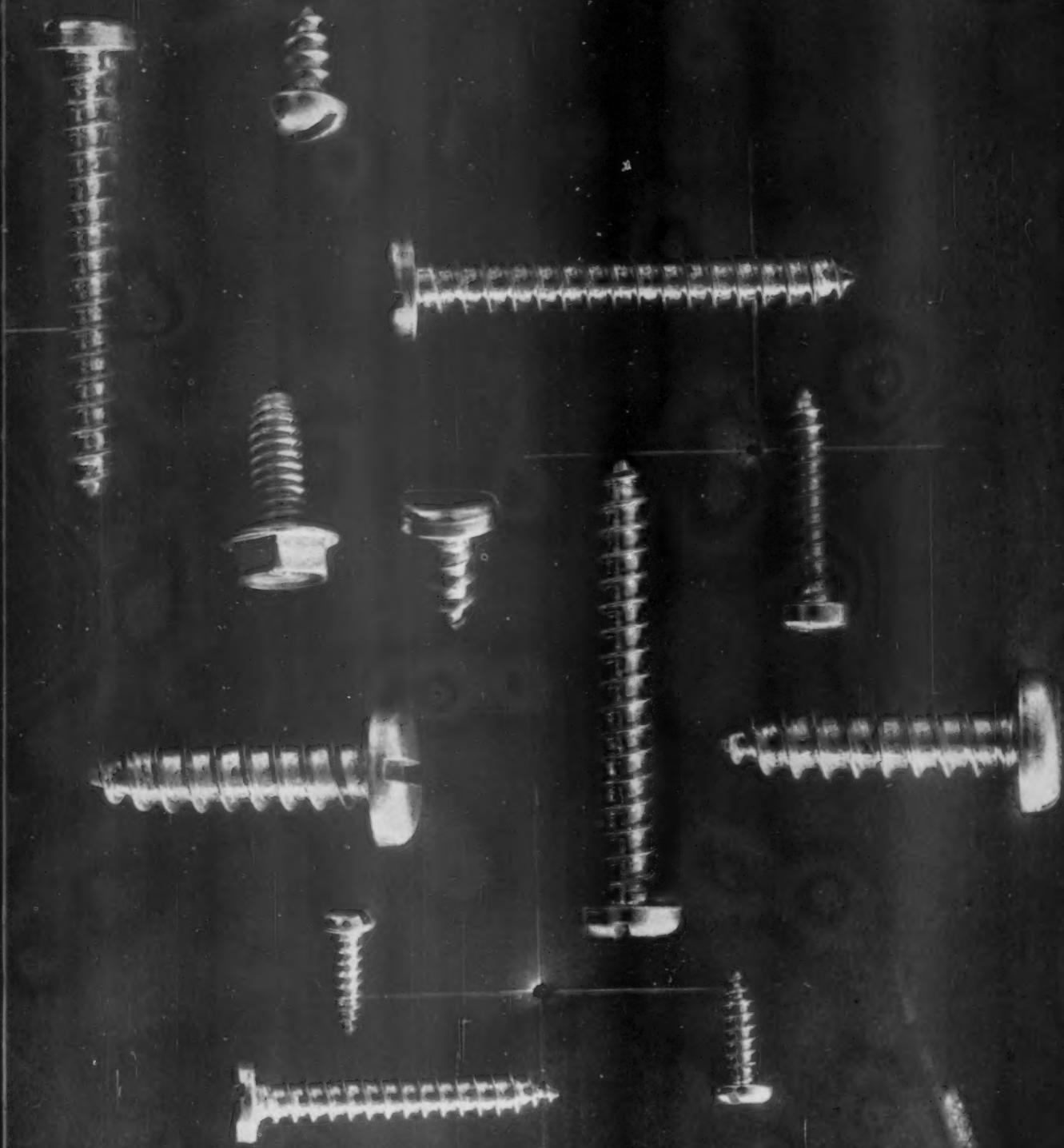
PURCHASING

Correct fastener selection can keep costs down! You may be using a "special" fastener where a "standard" - at less cost - is available to do the same job. These savings may be considerable, particularly on production line products. How do you know when a "standard" will do just as well or even better? Just ask your nearest Lamson & Sessions salesman. They have all the information at their finger-tips... or can get it fast. There's almost a hundred years worth of fastener information in Lamson's files. The answer to your fastener problem is ready and waiting for you!

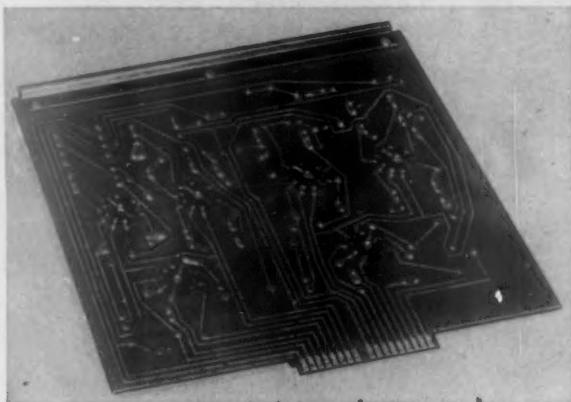


The Lamson & Sessions Co.

5000 Tiedeman Road, Cleveland 9, Ohio • Plants at Cleveland and Kent, Ohio • Chicago • Birmingham



CDF PLASTICS AND FIBRE



Heart of the best printed circuits —

CDF Di-Clad® LAMINATES

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon® resin and glass fabric cloth for use under sustained temperatures of 180°C. In addition, CDF offers a full range of Di-Clad laminates to meet every known demand of printed circuitry. High foil-bond strengths withstand soldering heats, reduce assembly rejects. Full line of Di-Clad grades — glass fabric and paper-base — with Teflon®, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Di-Clads! Write for CDF Di-Clad Folder DC-58.

*duPont trademark for its tetrafluoroethylene resin

CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon® — such as small- and large-diameter thin-wall tubing, glass-fabric laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflon — from tapes to high-heat-resistant printed-circuit laminates — your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

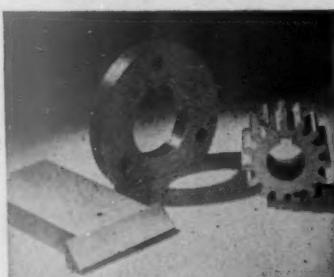
*duPont trademark for its tetrafluoroethylene resin



CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of glass-supported silicone rubber, silicone varnish, Micabond, with and without backings; and unsupported and glass-supported Teflon®. Color identification — CDF tapes of Teflon are made in the standard identifying colors. Call your CDF sales engineer, or write for test samples.

*duPont trademark for its tetrafluoroethylene resin



DIAMOND VULCANIZED® FIBRE

keeps costs down

Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, fabricated parts, and formed specialties. Write for Catalog DVF-58.

LOW-COST VULCOID is Resin-impregnated Vulcanized Fibre. Vulloid (made only by CDF) is an intermediate insulation material. It combines the desirable arc-resistance and mechanical properties of vulcanized fibre with many of the good qualities of a phenolic laminate. UL-approved as Class A insulation in electrical equipment. Bearing applications requiring high precision have been successful with Vulloid. Write for Bulletin V-58.



CDF CELORON® MOLDED PRODUCTS

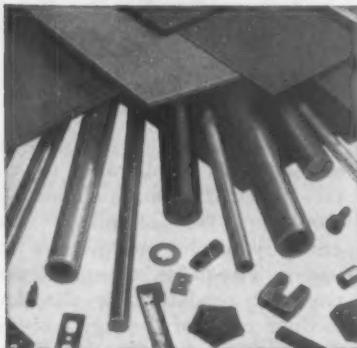
Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electrical or mechanical parts made from CDF Celoron®. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate loom parts, etc. Write for CDF Catalog C-58, or contact your nearest CDF sales engineer.

PURCHASING NEWS



CDF DILECTO® LAMINATED PLASTICS

for electrical and mechanical applications



DILECTO®, made in scores of grades, means high-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

RESINS AVAILABLE IN DILECTO:

Phenolic
Heat-resistant Phenolic
Silicone

Epoxy
Melamine

Polyester
Teflon*

BASES FOR DILECTO:

Glass Fabric
Nylon Fabric
Asbestos Fabric
Cotton Fabric

Glass Mat
Felted Asbestos
Non-woven Cotton Mat
Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-C.

*duPont trademark for its tetrafluoroethylene resin

For a better motor or generator -



CDF
MICABOND®
INSULATING
PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylar® polyester film); Fabricated Parts of various shapes such as Mica segments. CDF supplies and fabricates Micabond to your strictest specifications — on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-58.

*duPont trademark

PLASTICS
FABRICATION
BY CDF



SAVES YOU TIME, MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of your fabricated parts as specified and on time. No time is lost at CDF between raw-material production and final fabrication. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!

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Canadian Representative

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46 Hollinger Rd., Toronto 16, Ontario, Can.

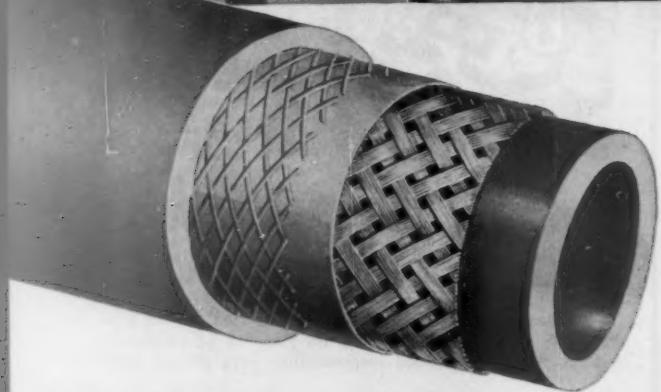


CONTINENTAL-DIAMOND FIBRE

A SUBSIDIARY OF THE *Baile Company* • NEWARK 41, DELAWARE

For More Information Write No. 209 on Inquiry Card—Page 32

There's a Thermoid Hose for every job



Cut costs with
Thermoid Conveyor Belting...



...and Thermoid Multi-V Belts.



And for your job, too!

You'll find Thermoid has a hose that wears better, lasts longer, stays "on the job" to save you time and money. Each Thermoid Hose is built to do a specific job best. The same is true of Thermoid Conveyor Belting, Multi-V Belts and Friction Materials. Call your local Thermoid Distributor today.



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Products

Air Shipments Delivered in 3 Days



A fast method of shipping by air, at rates comparable to surface transportation, is announced. Key to the simplicity and economy of the operation is the use of "ParcelAir" stamps to pre-pay and predetermine the door to door costs of the new service. A chart lists state-to-state rates, rather than zone rates. Costs of shipping are the same to any locality within the state. Waybills, auditing and delays in billing are eliminated. Combining fast air freight with truck or parcel post delivery permits one to three day delivery anywhere in the U.S. for packages of up to 40 lb. The service is operated by American Ship-papers, Inc. 315 W. 36th St. New York, N. Y.

Write No. 18 on Inquiry Card—Page 32

Battery Has Long Wet-Stand Life

A re-usable silver-zinc primary battery is claimed to have the highest specific energy and the longest activated stand time yet developed. It only needs to be manually filled to be activated for immediate use. Once activated, the battery can stand without any loss of capacity for months. This property compares with the 24-48 hour maximum activated stand life of other reserve primaries. This new compact battery eliminates the extra weight involved in the use of automatic activation systems. Energy outputs of 70 watt-hours are possible. Battery is a product of Yardney Electric Corp., 40 Leonard St., New York City.

Write No. 19 on Inquiry Card—Page 32
For More Information Write No. 210
← on Inquiry Card—Page 32

BUSINESS IN MOTION

To our Colleagues in American Business . . .

One look at the newest buildings in your community, with their wide expanses of window area, and you realize the tremendous growth of curtain-wall construction in modern architecture. The results of curtain-wall or "skin" type construction have been greater design flexibility, more striking structures, more durable, weatherproof structures, with savings in space and weight, thus an overall saving in cost per square foot.

These savings have been effected through the development of new materials and the ingenious application of standard materials. Take, for example, the increasing use of welded steel tubing for framing and window supports. Standard sizes of welded steel tubing in square and rectangular shapes are appearing more and more in structures, from one-story school buildings to monumental skyscrapers. Welded steel tubing, with its lightweight-high-strength combination, has been most economically used in place of more costly structural members. This type of construction has been tested under tornado conditions with perfect success . . . proving beyond any doubt the weather-resistance, safety and effectiveness of its design.

Recently, we were asked by a customer to help solve a problem in curtain-wall tubing. The customer was buying from several sources and had difficulty in getting a uniform product. Radii and other dimensions varied drastically, causing many rejections. By specifying Revere Welded Steel Tubing, this customer tells us, these difficulties were overcome, and the

Revere tubing has proved to be of uniformly excellent quality. Revere has been a major manufacturer of welded steel tubing for over 35 years and can produce practically all of the standard sizes of square and rectangular tubing used for curtain-wall construction, including the popular 2"x2", 4"x4", 2"x4" and 2"x6" sizes. Revere welded tubing also has the advantage of its uniform wall thickness being held to the close tolerances necessary in curtain-wall applications.

In addition to Welded Steel Tubing, Revere also supplies Revere Aluminum Extrusions for use in combination with the tubing in producing the steel tubing reinforced, aluminum covered panels, being used by many architects in curtain-wall skyscrapers with large window areas. Still another application of Revere Metals in curtain-wall construction is to be found in the 325,000 lbs. of Revere Architectural Bronze spandrel sheets used in the newly constructed 38-story,

Seagram Building, New York, New York.

The use of Revere Welded Steel Tubing, Revere Aluminum Extrusions and Revere Architectural Bronze in modern curtain-wall construction are but three examples of "fitting the metal to the job." A function for which Revere has become well known and for which Revere's Technical Advisory Service is qualified to aid in the impartial recommendation of the right metal to do the best possible job at the least cost . . . whether it be welded steel tubing, copper, brass, aluminum or any of the other non-ferrous alloys . . . in building or for industrial use.

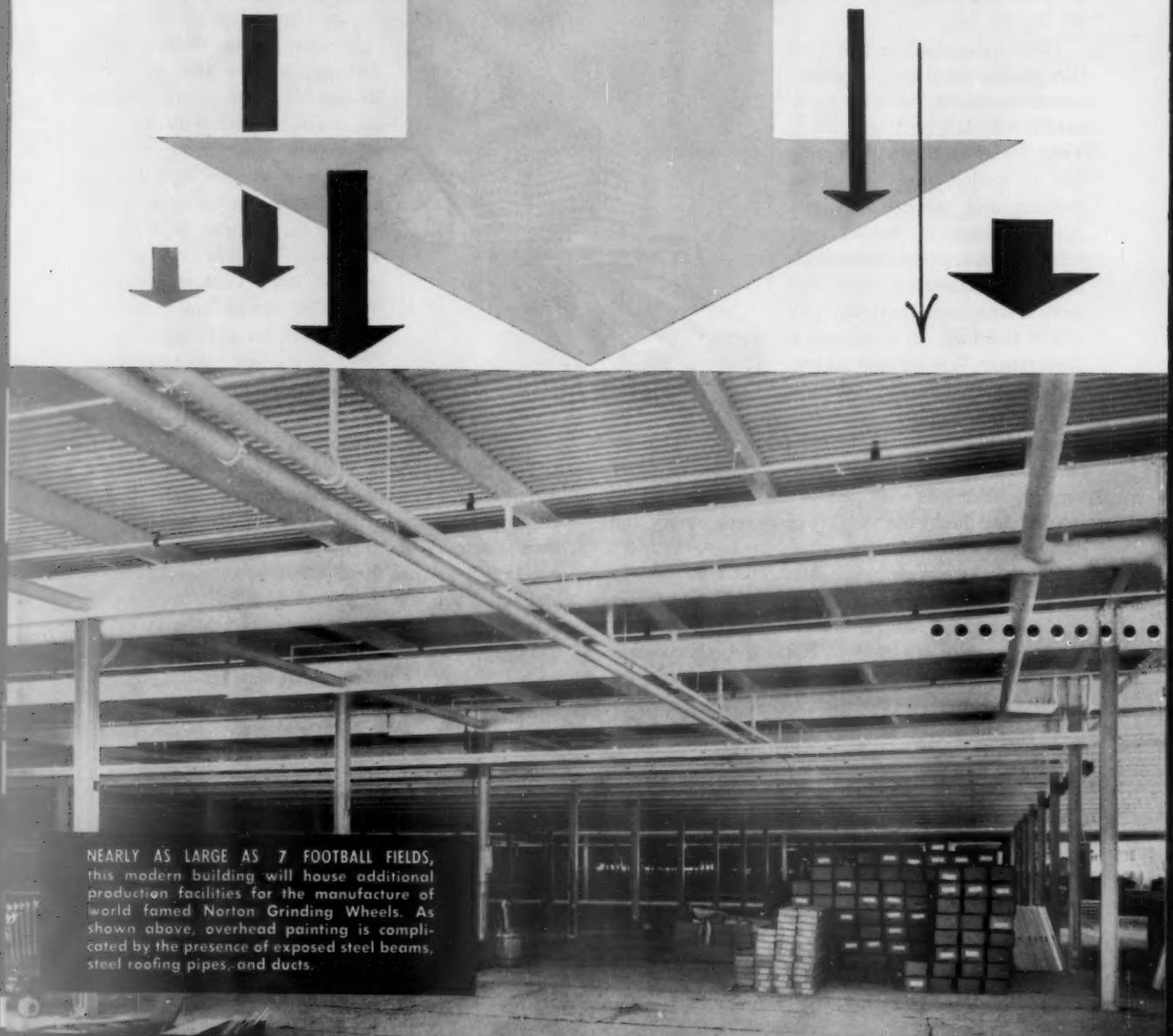


REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
Executive Offices: 230 Park Avenue, New York 17, N. Y.

DOWN GOES THE OVERHEAD!

NEW BARRELED SUNLIGHT SUPER HIDING
WHITE LIGHTENS THE ILLUMINATION...
LOWERS CEILING PAINT COSTS AT
THIS NEW NORTON COMPANY PLANT

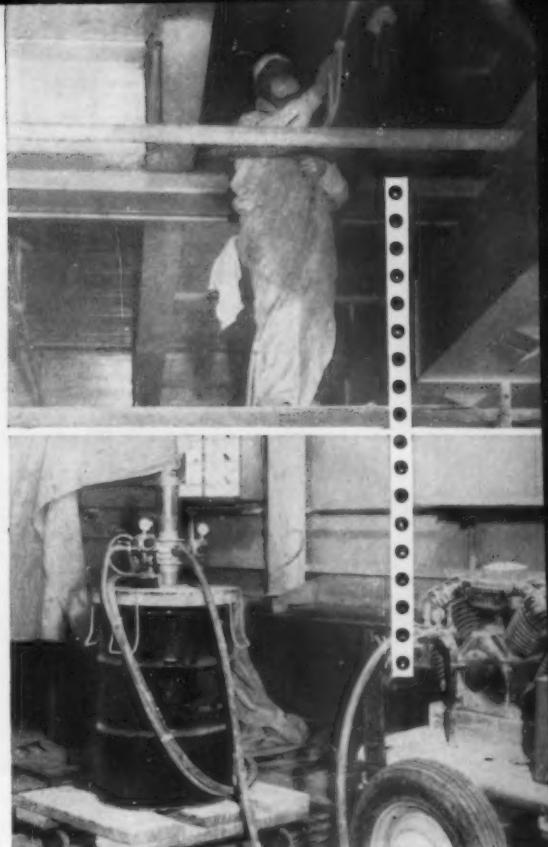


NEARLY AS LARGE AS 7 FOOTBALL FIELDS,
this modern building will house additional
production facilities for the manufacture of
world famed Norton Grinding Wheels. As
shown above, overhead painting is compli-
cated by the presence of exposed steel beams,
steel roofing pipes, and ducts.

Five acres of overhead — 19 feet high and with a minimum of natural lighting — posed plenty of painting problems for E. J. Cross Company, building contractors for The Norton Company's new grinding wheel plant at Worcester, Massachusetts. Yet they solved them and saved substantially on coverage costs with Barreled Sunlight Engineered Paints.

To bring down the high cost of on-the-job mixing and application, Mr. Richard V. George, Superintendent of Painting, specified ready-for-the-gun Barreled Sunlight Super Hiding White. Using high speed spray guns, his five-man crew applied this engineered paint directly from 55-gallon drums to ceiling areas with a minimum of fog, no runs and perfect results. As reported by Mr. George, "the new Barreled Sunlight Super Hiding White has a better sheen and tighter film. *It looks white even in dark, shadow areas!*"

Lighter, brighter and more economical paint jobs like this do not "just happen". Only through careful planning and the use of Barreled Sunlight Engineered Paints — specially formulated for heavy duty requirements — can you be sure of perfect paint jobs every time. Prove it for yourself by making the famed Barreled Sunlight "On-the-Wall" Test in your own plant. Fill out the attached coupon now for fast action!



**DIRECT FROM DRUM TO GUN
IN ONE OPERATION!**

To speed painting of overhead areas in this giant plant, ready-to-apply Barreled Sunlight Super Hiding Paint is applied with spray guns directly from 55-gallon drums.

Barreled Sunlight



Send for your free copy of this Barreled Sunlight Engineered Color Catalog now. Contains complete descriptive information plus Color Chip Selection Section.



FOR A BETTER LOOKING, LONGER LASTING PAINT JOB AT LOWER COST

**BARRELED SUNLIGHT PAINT COMPANY
18-1 Dudley Street, Providence 1, R. I.**

- Please contact me soon to arrange an "On-the-Wall" Paint Test at no obligation.
- Send me a free copy of the Barreled Sunlight Engineered Color Catalog.

NAME..... POSITION.....

COMPANY.....

STREET.....

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INSURED ACCURACY WITH LENOX GROUND FLAT STOCK

The LENOX triple-check, quality-control technique guarantees absolute accuracy with each piece of LENOX Precision-Master Ground Flat Stock which you use. Free from decarburization, LENOX Precision-Master is ground to a mirror finish of 25-30 micro inches. Tolerances are always held within specifications, so that you can depend on LENOX.



*All standard sizes
carried in stock
for same-day shipment.*



AMERICAN SAW & MFG. COMPANY

SPRINGFIELD, MASSACHUSETTS • U.S.A.
For More Information Write No. 213 on Inquiry Card—Page 32

Products

Rust Preventive Is Non-Toxic, Non-Flammable



A rust preventive, packaged in an aerosol container, protects all types of metal products and machinery against rust. Spray application provides a continuous light film protection. In most cases, this thin coating does not have to be removed before use or final finishing of the products or machinery. The fact that the rust preventive is non-toxic and non-flammable helps to reduce costs of fire insurance and workmen's compensation. Lehigh Chemical Co., Chestertown, Md., make the product.

Write No. 20 on Inquiry Card—Page 32

Shaft Speed Reducer Economizes on Space

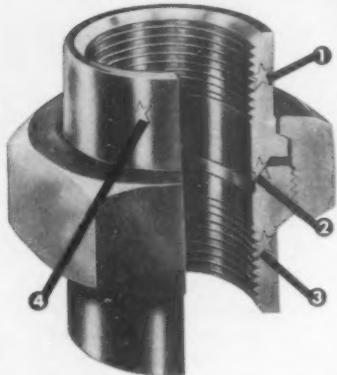


A concentric shaft speed reducer permits reduction in the sizes of servo packages and other control assemblies. A single-ended unit, the X-530, is built with its high speed input shaft coaxial with a low speed output sleeve. The input shaft extends about $\frac{3}{8}$ "



only CATAWISSA

*gives you all these
features for your
forged steel pipe
union requirements*



1. Uniform walls for even expansion and contraction under temperature changes. They follow the pipe!

2. Catawissa Ball-to-Angle Seats give you a "Perfect Seal" regardless of pipe alignment!

3. More than adequate wall thicknesses give you Catawissa's 3-to-1 Safety Factor (3000-lb. service, 9000-lb. test; 6000-lb. service, 18000-lb. test)!

4. Round, straight barrels for fast wrenching. No uneven or tapered surfaces to cause wrench slips or wrench locking!

Catawissa Perfect Seal Pipe Unions are made by Union Specialists from 80,000 lb. tensile strength steel (ASTM Spec. A-105-55T, Grade II). Steel forgings from our own forging mill are closely checked for imperfections . . . and finishing on modern, automatic machines with close inspection during and after production give you pipe unions second to none!

Write for Catalog 58 showing the complete Catawissa line of Perfect Seal Products.

for complete, guaranteed satisfaction

*... always specify
CATAWISSA*

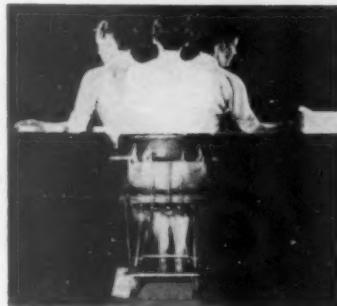
CATAWISSA VALVE & FITTINGS CO.

CATAWISSA • PENNSYLVANIA

For More Information Write 214
on Inquiry Card—Page 32

to receive driving power. The plug-in type reducer has a backlash of 30 minutes maximum with a 3 inch/oz. reversing load. It is fabricated with passivated stainless steel bearing plates and gear clusters. Frame diameter is 1.062". The speed reducer is made by Bowmar Instrument Corp., 8001 Bluffton Rd., Fort Wayne, Ind. Write No. 21 on Inquiry Card—Page 32

Industrial Chair Reduces Muscular Strain



A chair for sedentary industrial workers permits complete flexibility. The seat moves laterally in four directions in response to the slightest body movement. In normal position, the bench or table operator has a completely stable and comfortable seat. When the operator turns and reaches to right or left, the chair leans with the body. As a result, muscular strain, which accompanies such movements from an ordinary chair, is almost non-existent. Worker fatigue is greatly reduced, aiding productivity. Seating, Inc., Robbins, N.C., makes the chair. Write No. 22 on Inquiry Card—Page 32



"Don't let me tell you about our sensational offer if you have a weak heart."

For More Information Write No. 215
on Inquiry Card—Page 32

**NOW, in G-E
Form G motors**



**NEW
EXTRA
VALUE
FEATURES**

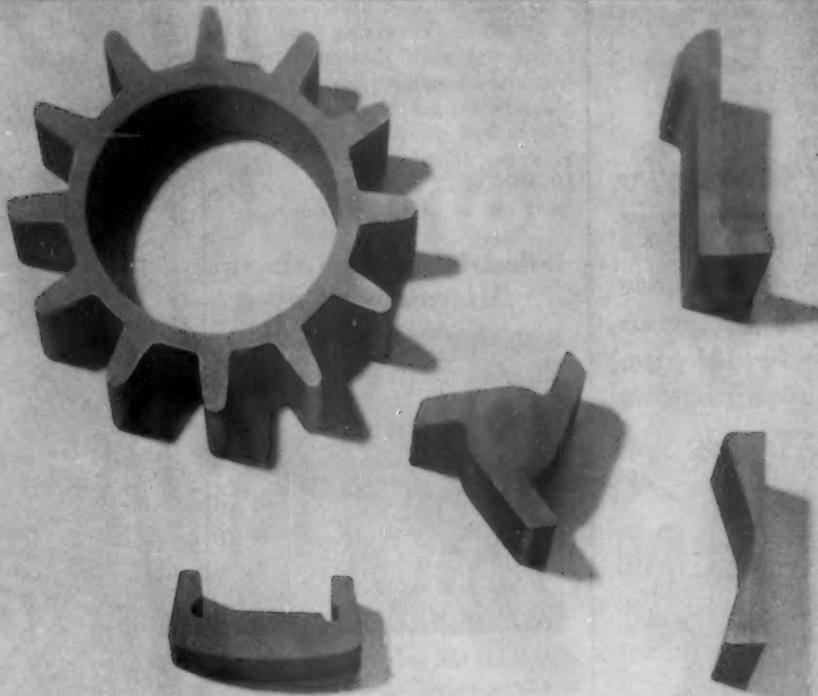
See the next 10
pages for details

702-77



Buy Now for Extra Value
GENERAL ELECTRIC

Experience—the added alloy in A-L Stainless, Electrical and Tool Steels



present size range:
maximum— $5\frac{1}{4}$ in. diam.
circumscribing circle;
minimum—0.4 sq. in. area

- 316 Stainless
- 304 Stainless
- Tool Steel Atlas 93
- SAE 4130
- 410 Stainless

Why hog out intricate shapes like these? Let A-L extrude them in any steel

If you're hogging out sections, paying for special mill rolls on small orders, or waiting for minimum rolling mill tonnages, Allegheny Ludlum Steel Extrusions are your answer. They will save you scrap loss, slash your machining costs, hold down your inventory requirements and cut delivery time.

Extruded shapes save money on expensive materials and on costly machining. Non-ferrous applications in the last decade have proven it. Now even greater savings are possible with tough, strong metals in Allegheny Ludlum Steel Extrusions.

Intricate extruded shapes in all stainless grades, tool steels, carbon steels, electrical steels, high temperature alloys, even zirconium and nickel alloys are now in produc-

tion at Allegheny Ludlum, cutting costs in many different industries.

Costs and minimum order quantities are surprisingly low. Charge for die design is under \$200. Orders taken for as little as 40 pounds.

To learn more about the time and cost-cutting possibilities of Allegheny Ludlum Hot Steel Extrusions, send for the extrusion booklet—12-pages of design and engineering information with process and product explanation, material properties, design tips and limitations, tolerances, order instructions, etc. Or call any A-L office for technical assistance. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.* Address Dept. P-9.

WSW 7110

ALLEGHENY LUDLUM

for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT



For More Information Write No. 216 on Inquiry Card—Page 32

PURCHASING

Products

Ice Melting Material Works Fast



A rust-inhibited ice melting material is reputed to have 32 times greater thawing capacity than salt at 5°F. It is available from National Asphalt Corporation, Bulkley Building, Cleveland

15, Ohio. Known as Nacor Melts-It, it is made in the form of small balls, slightly larger than BB shot. Melting is accomplished by exothermic action (internal generation of heat). Corrosion, incident to most chemical thawing, is said to be greatly reduced due to the inclusion of NA-23, a new inhibitor used exclusively by Nacor.

The material is recommended for melting ice in practically every location. Loading platforms, drives, walks, steps, ramps, parking lots, are a few common applications. In addition, Nacor Melts-It is said to be suitable for thawing drains, gutters, downspouts, switches, sewers, etc. It can be readily mixed with abrasives for large scale use.

Write No. 23 on Inquiry Card—Page 32

**FOR MORE INFORMATION
USE INQUIRY CARD
PAGE 32**

SPECIAL RIVETS
like some of the samples shown here . . . or the more commonly used tubular and split rivets . . . they're all alike to the American Rivet Co. And always—our own special brand of quality and service that gets you what you want when you want it.

THE AMERICAN RIVET CO., Inc.
849 N. Kedzie Ave., Chicago 51, Ill.

Write for price list. For specials, send specifications for prices.

BUY AMERICAN Tubular and Split RIVETS

For More Information Write No. 217 on Inquiry Card—Page 32

For More Information Write No. 218
on Inquiry Card—Page 32→

**G-E 1 hp motor
New Extra Value**

1



PROTECTIVE FINISH

Rust-resistant shaft and hardware stop corrosion, simplify maintenance

The special gun-metal-like shaft treatment makes servicing easier because fans, pulleys, and couplings can't rust on. End

shield latches and hardware are bright plated to last longer and look better. Because maintenance is simplified on today's Form G motor you get added salability, extra customer satisfaction. Investigate this extra value feature.

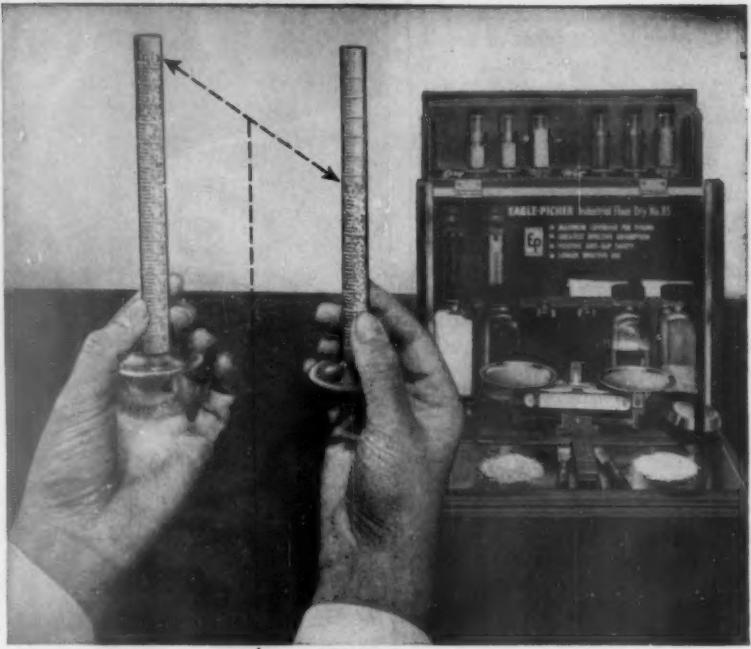
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BUY NOW
FOR EXTRA
VALUES



GENERAL ELECTRIC



There's a BIG difference in floor absorbents

TEST IT Yourself!

IN YOUR OWN OFFICE, make this simple 15-minute test. Compare Eagle-Picher Industrial Floor-Dry to any other floor absorbent.

HERE'S WHAT YOU'LL PROVE TO YOURSELF about safe, skid-proof Eagle-Picher Floor-Dry: It's extremely insoluble, absorbs more oil and water. It goes further, provides much greater coverage. It reflects more light, brightens the work area. It's non-combustible, has no chemical reaction. It lasts longer, saves you money!



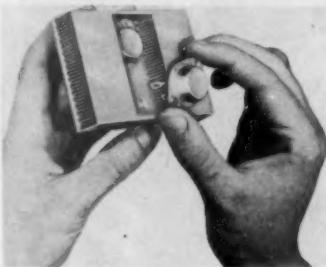
WRITE TODAY. Our Eagle-Picher representative will bring the portable laboratory to your office where you may make this test yourself. The Eagle-Picher Company, Cincinnati 1, Ohio.



For More Information Write No. 219 on Inquiry Card—Page 32

Products

Aluminum Coolers for Electronic Components



High heat loads resulting from increased power for electronic transistorized circuits can now be dissipated without "designing up." A compact, corrosion-resistant, anodized all-aluminum cooler has been developed for use with transistors, diodes and rectifiers. The cooler assures maintenance of junction temperatures within design specifications. It conducts heat away from the transistor through thermal contact with a finned plate. The coolers are available in two module sizes, 2½" and 3¾". They may be procured from Modine Mfg. Co., Racine, Wis.

Write No. 25 on Inquiry Card—Page 32

Tapping Attachments



Three tapping attachment models have been designed for use with machines with reversing spindles, such as lathes, jig borers, screw machines, etc. The attachments operate on the weightless tapping principle. They have a floating axial movement. This eliminates necessity of any lead pressure by the operator during the tapping cycle. As a result,

consistently perfect threads are assured. Rated capacities of the units are #0—5/16" for Model 400; #10—5/8" for Model 600 and 9/16"—1" for Model 800. Tapmatic Corp., 845 W. 16th St., Costa Mesa, Calif. is the manufacturer.

Write No. 26 on Inquiry Card—Page 32

Bin-Type Shelving For Compact Storage



More than 300 items can be stored in a 12-foot wall space through use of bin-type steel shelving. This avoids storing parts

**"FOR
IMMEDIATE
DELIVERY!"**

NUTS



SCREWS



BOLTS



WASHERS



**ATLAS
OF NEW YORK**

WIRE NEWARK 365 • WRITE • PHONE WO 6-0600

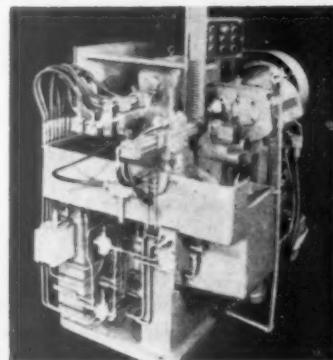
ATLAS SCREW & SPECIALTY CO., INC.
DEPT. P

450 BROOME STREET, NEW YORK 13, N. Y.
For More Information Write No. 220
on Inquiry Card—Page 32

haphazardly in various locations throughout the plant. The bin-shelving eliminates delays in locating needed parts. Each bin unit measures 36 in. wide by 12 in. deep by 7 ft. 3 in. high and is equipped with 84 steel part drawers. The shelving is produced in models having from 7 to 162 bins. This permits a wide variety of bin arrangements for storage or inventory purposes. Shelving is made by Penco Metal Products Div., Alan Wood Steel Co., Oaks, Pa.

Write No. 27 on Inquiry Card—Page 32

Milling Machine Prolongs Cutter Life



A hydraulic tap flute milling machine solves two major production problems for tap manufacturers. It maintains continuous operation at maximum output. At the same time, it eliminates costly cutter replacement. In this milling machine, a compensating feed table automatically slows down for hard spots in workpiece. When hard spots are passed, the machine resumes preselected feed speed. As a result, production is maintained at peak level. Also cutter life is greatly increased compared with that of other machines. Machine is made by Kohler-Joa Corp., Sheboygan Falls, Wis.

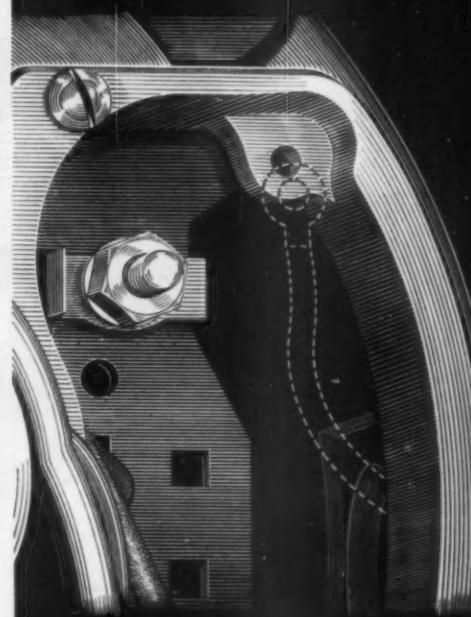
Write No. 28 on Inquiry Card—Page 32

**FOR MORE INFORMATION
USE INQUIRY CARD
PAGE 32**

For More Information Write No. 221
on Inquiry Card—Page 32→

**G-E fhp motor
New Extra Value**

2



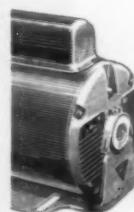
**SAFER
OPERATION**

**Built-in grounding lug permits fast,
easy grounding to meet UL standards**

Now on Form G motors you get a built-in grounding lug that meets UL standards for grounded third lead when required.

With a self-tapping screw you can make ground connections quickly, easily and inexpensively. This feature assures safe, permanent grounds. There's no chance of disconnection during maintenance. Ask about this extra value.

702-79



**BUY NOW
FOR EXTRA
VALUES**



GENERAL ELECTRIC

HERRINGBONE WIRE ROPE

New
**Longer-Wearing
Pattern in
Wire Rope
Styles!**

After three years of extensive field trials this, the newest of Roebling's wire ropes, is now ready to go to work for you on a service basis that will exceed that of *the wire rope you are now using.*

Roebling Herringbone* combines the best features of both regular and Lang lay rope constructions; being made up of two pairs of Lang lay strands and two strands of regular lay. The regular lay strands separate the two pairs of Lang lay strands. Thus, in one rope you have the superior flexibility and abrasion resistance of Lang lay and the greater structural stability of regular lay.

For the past three years, under all kinds of conditions, Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. The results have been wonderful . . . excellent flexibility, exceptional resistance to shock and abrasion, smooth, easy operation around drums and over sheaves, smooth spooling properties and structural stability unequalled by other rope for the same job.

There has never been a better time—or a wider need—for a wire rope that returns so much service for its cost. And, in addition to being a top performer on the job, Herringbone eliminates the necessity of stocking Lang lay for one purpose and regular lay for another.

You are invited to get in touch with your Roebling distributor or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, for further and fuller details on the *investment* qualities of this new and highly serviceable rope.

*Reg. appl. for

ROEBLING 

Branch Offices in Principal Cities • Subsidiary of The Colorado Fuel and Iron Corporation

Products

More Efficient Automatic Hand Dryer



A more efficient automatic hand dryer for public restrooms has been developed. A specially designed motor induces a 20 percent increase in the hot air flow produced by the hand dryer. The air moving across the heating element is heated to 140 F at room temperature. An automatic circuit breaker prevents over-heating. The dryer, actuated by a push button, operates for 30 sec-

onds, and shuts off automatically. The unit is 11 $\frac{1}{8}$ " long by 9 $\frac{5}{8}$ " high by 6 $\frac{1}{8}$ " deep. It is a product of World Dryer Corp., 616 W. Adams, Chicago, Illinois.

Write No. 29 on Inquiry Card—Page 32

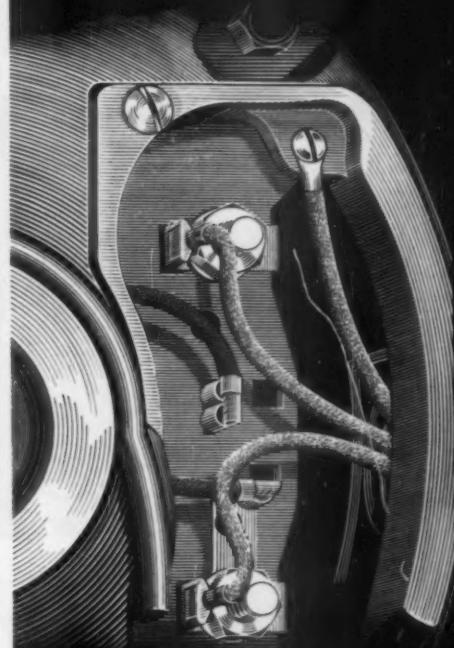
G-E fhp motor
New Extra Value

3

Disposable Plastic Glove

A new plastic glove is rugged enough to be re-usable and inexpensive enough to be disposable. Known as Handgards, the glove is made of 1 $\frac{3}{4}$ mil polyethylene material, heat sealed to insure a waterproof product. The gloves are pre-talcumed for ease in sliding on and off. Although strong, they do not impair the sense of touch as do gloves of other materials. The finger puckering caused by the tightness of rubber gloves has been eliminated. The gloves, available in large, medium, and small sizes, are packaged in convenient rolls of 12 to 1,000. They are available from Plastic-smith, Inc., Box 415, Concord, California.

Write No. 30 on Inquiry Card—Page 32



EASIER WIRING

This enlarged wiring compartment saves
hook-up time on the assembly line

Wiring compartments on G-E motors are now roomier and easier to work with. An enlarged opening allows greater accessibility.

A narrower terminal board makes it easy to bring in leads from conduit. And there are no extra studs on the board to result in "hook-up confusion." Easier, more accurate wiring results. How much can this extra value save you?

702-80



BUY NOW
FOR EXTRA
VALUES



GENERAL  ELECTRIC

1 $\frac{3}{4}$ " through 8" Bolt Diameter

Of course, our fasteners aren't quite this big, but we do make the largest nuts, bolts, studs and eye bars in the metalworking industry. Save time and money by letting specialists fabricate your large fasteners of all types. Made in a factory devoted exclusively to their manufacture. Complete steel stocks. Modern testing and heat treating facilities.

Send for The Dyson Large Fastener Catalog

36-page catalog contains dimensions, specifications and prices on Dyson large forged nuts, plus data on large eye bars, bolts and studs.

Joseph DYSON & SONS, INC.

5125 St. Clair Ave., Cleveland 3, Ohio • Telephone: HEnderson 1-6157

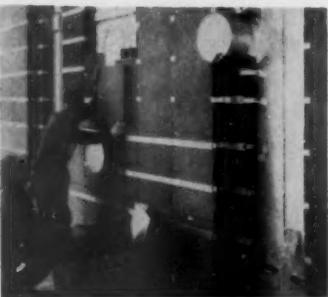
For More Information Write No. 223 on Inquiry Card—Page 32

For More Information Write No. 224
on Inquiry Card—Page 32→

SEPTEMBER 15, 1958

Products

Insulating, Refractory Material



A new acid-resistant insulating and refractory material, "Foamsil," is now available for the chemical and chemical process industries. It is also suited for many areas of the metallurgical, electrical, petrochemical and other similar fields. The material is 99% pure fused silica. It can neither oxidize nor absorb moisture. It offers continuous insulating protection and withstands thermal shock within a range from -450 F to 2200 F. The insulating value of one inch of Foamsil is equivalent to that of 18 inches of acid brick. The product is made by Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.

Write No. 31 on Inquiry Card—Page 32

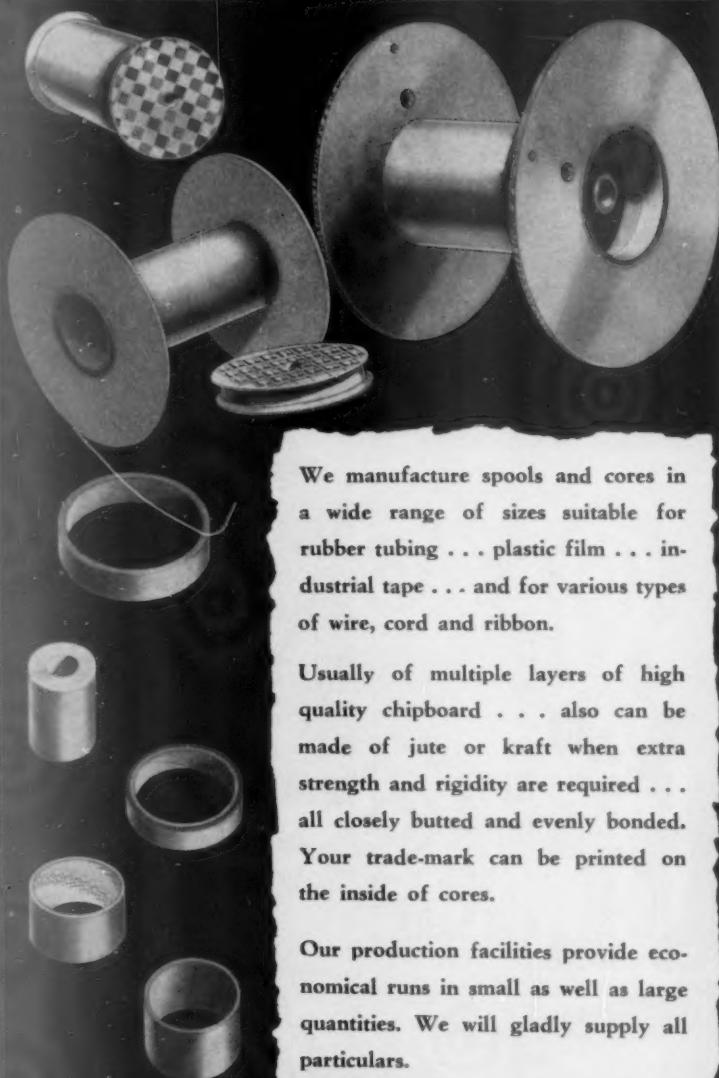
Wire Cutter Process 9000 Pieces Hourly

A wire cutter and stripper is completely automatic. It unreels insulated wire, simultaneously cuts and strips it, and then stacks pieces in a trough. The machine does the work of from 3 to 12 conventional machines—handling over 9000 pieces an hour for 1" to 40" wire lengths. On longer lengths, rates graduate down to some 3000 pieces an hour for 80" to 120" lengths. The machine handles a wide variety of single conductor, insulated wire, as well as solid wire and plastic or fabric tubing. The manufacturer is the Jennings Machine Corp., 3452 Ludlow St., Philadelphia 4, Pa.

Write No. 32 on Inquiry Card—Page 32

CLEVELAND CONTAINER SPOOLS AND CORES

CAN BE THE ANSWER TO MANY OF YOUR PACKAGING PROBLEMS.



We manufacture spools and cores in a wide range of sizes suitable for rubber tubing . . . plastic film . . . industrial tape . . . and for various types of wire, cord and ribbon.

Usually of multiple layers of high quality chipboard . . . also can be made of jute or kraft when extra strength and rigidity are required . . . all closely butted and evenly bonded.

Your trade-mark can be printed on the inside of cores.

Our production facilities provide economical runs in small as well as large quantities. We will gladly supply all particulars.

Why Pay More? For Quality Products . . . call Cleveland!

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ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
• SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES.

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CONN.

ABRASIVE

DIVISION
AT
CLEVELAND

For More Information Write No. 225 on Inquiry Card—Page 32

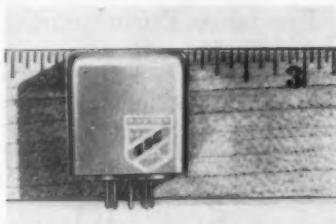
Flowmeter Directly Reads Total Mass Flow



A new type flowmeter measures mass flow of air or other gases, independent of temperature and pressure variations. The instruments are calibrated directly in milligrams of air per minute. They are available in several flow ranges. The flowmeters are especially suited for measuring low rates of flow, such as in gas chromatography. One model has a range of from 0 to 10,000 milligrams of air per minute; the other has a lower range of 0 to 500 milligrams of air per minute. The flowmeters are available from Hastings - Raydist, Inc., Hampton, Va.

Write No. 33 on Inquiry Card—Page 32

Pulse Generator Frees Larger Equipment

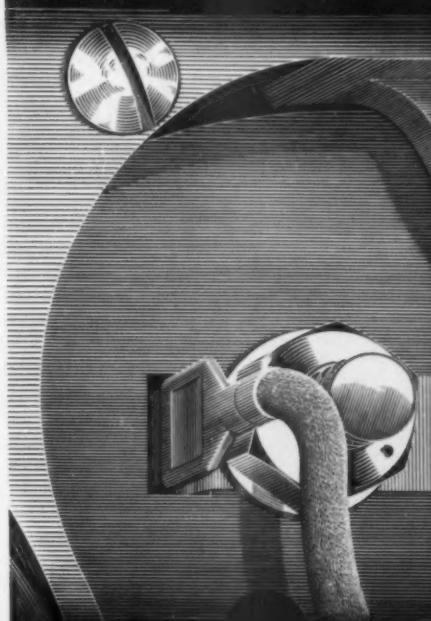


A portable 1" square pulse generator has been developed to generate any fixed or pulse repetition rate. The unit avoids tying up larger pulse-generating equipment. In this portable model, the specified pulse rate is factory-set. This permits quick, simple plug-in operation. Because the unit cost of these small pulse generators is so low, several can be stocked. They can have various pulse rates already pre-fixed so as to be ready for quick insertion at any time. The manufacturer is ESC Corp., Electronics Components Div., 534 Bergen Blvd., Palisades Park, N.J.

Write No. 34 on Inquiry Card—Page 32

**G-E fhp motor
New Extra Value**

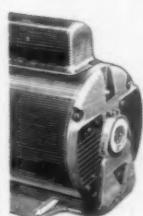
4



FASTER CONNECTION

Now plug-in connectors on all terminals cut wiring time in half

For the first time on all single-phase Form G motors, General Electric offers time-saving quick connectors on *all* external and internal contacts.* Wiring time is cut in half. (Studs have been retained for conventional wiring.) Simply plug in the leads. Fast, positive connections are assured. Try it yourself. You'll like this new General Electric extra value.



*Explosion-proof and a few special motors excepted. 702-81

BUY NOW
FOR EXTRA
VALUES



GENERAL ELECTRIC

PAGE CHAIN LINK FENCE

America's First Wire Fence—since 1883



NOW Registered

for double assurance
of quality

—Another Progressive Step by PAGE!

• Top quality of materials has always been a distinguishing feature of PAGE Chain Link FENCE. This well-known value plus PAGE standards of workmanship in fence erecting by members of the Page Fence Association have given continuing assurance of reliable protection and good appearance. Now another forward step adds to value certainty. Each newly erected fence will be identified by a PAGE "REGISTERED" metal plate and a dated, numbered and signed Registration Certificate

will be given to the owner. Registration of your new Page Fence and certification of its quality are assurance of long, dependable service and lasting satisfaction.

PAGE will help you to choose the RIGHT fence for YOU from a wide variety of fence styles and four superior fabric materials—including the new ACCO Aluminized Fabric. For information and name of nearest Association member, write for Folder DH-2b.

Address: PAGE FENCE ASSOCIATION
National Headquarters • Monessen, Pa.

A PRODUCT OF PAGE STEEL & WIRE DIVISION, AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Write No. 226 on Inquiry Card—Page 32

For More Information Write No. 227
on Inquiry Card—Page 32→

NEW...

midget pliers
added to
KLEIN line



Hardly larger than a package of your favorite cigarettes, these new Klein Midget Pliers will simplify many of those small jobs where space is confined.

Midgets in size but giants in performance, they solve major problems when wiring up electronic assemblies; making model trains, airplanes, automobiles, or in any extremely small or confined work.

These new midgets are additions to the famous Klein line of high-quality pliers that are backed by over a century of manufacturing experience. See your dealer.

No. 257-4 Oblique Cutting Plier Size 4 in.
321-4½ Long Nose Plier 4½ in.
322-4½ (Without Knurl) 4½ in.
224-4½ End Cutting Plier 4½ in.

Free Bulletin on Klein Pliers

Bulletin 758 lists the many various pliers in the Klein line. A copy is yours for the asking. Write for it today.



Mathias & Sons **KLEIN**
Established 1857 & Sons Chicago, Ill., U.S.A.
7200 McCormick Road • CHICAGO 45, ILLINOIS

For More Information Write No. 228
on Inquiry Card—Page 32

110

Products

Precision Permanent Magnet



A precision permanent magnet has a field strength of 1,717.5 gauss and maximum field inhomogeneity at gap center of 40 milligauss (23 ppm) over a 2" dimension region. Designated model 104B, this unit has the following applications: material analysis by nuclear magnetic resonance (NMR) absorption or spin echo techniques; specialized NMR and EPR research; semi-conductor studies using Adiabatic Demagnetization; measurement of Hall Effect in conductors and semiconductors; and education and training in uses and properties of NMR. The unit is stable in time and temperature. Available from Schlumberger Well Surveying Corp., Ridgefield Instrumentation Division, Ridgefield, Conn.

Write No. 35 on Inquiry Card—Page 32

Machine Cuts Corrugated Metals



A metal cutting machine will cut all types of corrugated metals. It will cut these metals even if they have any kind of asbestos or pitch



Need fast delivery
of corrugated boxes?

Call your H & D
Packaging Engineer

HINDE & DAUCH

Division of West Virginia Pulp and Paper Company

Sandusky, Ohio
15 Factories
42 Sales Offices



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BRIGHT STAR INDUSTRIAL BATTERIES

**lowest
cost
per
minute
of
service!**



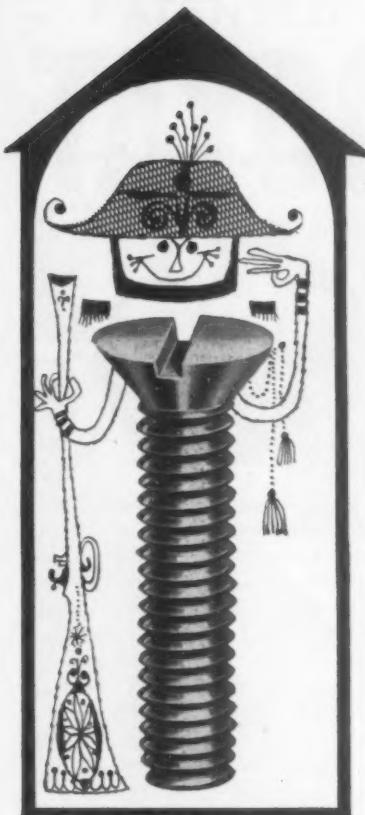
let us
prove it.

Write for performance charts
based on A.S.A. tests.

BRIGHT STAR INDUSTRIES
Clifton • New Jersey

For More Information Write No. 230
on Inquiry Card—Page 32

PURCHASING



GUARD AGAINST CORROSION WITH ALCOA ALUMINUM FASTENERS

Whatever you make, make it better of aluminum and fasten it with Alcoa® Aluminum Fasteners. Guard against both galvanic and atmospheric corrosion and get lasting sales appeal with bright, carefree aluminum fasteners. For your requirements, call your nearest Alcoa sales office. Complete stocks of all standard types and sizes of Alcoa Aluminum Fasteners are on hand at your local Alcoa distributor. Look in the Yellow Pages of your telephone directory.



Exciting Adventure
Alternate
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Your Guide to the Best in Aluminum Value
FREE... FACTS, SAMPLES... FREE... FACTS

Aluminum Company of America
2248-J Alcoa Bldg., Pittsburgh 19, Pa.
Gentlemen: Please send complete specification data
and samples of Alcoa Aluminum Fasteners.

Name _____
Title _____
Company _____
Address _____

For More Information Write No. 231
on Inquiry Card—Page 32

coating without clogging the machine. The machine, called the Fenway Nibbler, is portable. Injury due to jagged edges is eliminated since the nibbler cut leaves a finished, smooth edge. It is impossible for an operator's fingers to come in contact with the punch because the punch is set well back in the nose block. Cut pieces of metal drop directly down and aren't hurled or flipped at a tangent, which reduces chances of eye injury. The nibbler is made in five models and can be vice mounted for bench work or used portably as it weighs but 13 pounds. Available from the Fenway Machine Company, Edgemont and Clementine Sts., Phila. Write No. 37 on Inquiry Card—Page 32

Alloy Fittings Packaged In Cardboard Cylinder

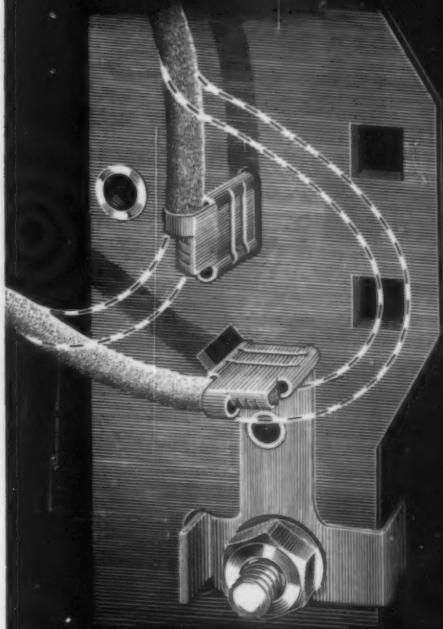


Simplified storage, rapid identification, faster order filling and constant protection from damage. These are the advantages cited for a program of individual packaging developed by Tube Turns, Louisville, Ky. The program is used for Tube Turn's stainless steel and non-ferrous welding fittings and flanges for industrial piping. Fittings are individually packed in a sleeve-type cardboard cylinder. The packaging protects the product from plant inspection to job installation. It also simplifies storage problems on distributor's shelves, expedites order-filling and leaves each fitting separately wrapped and readily identifiable up to the moment a welder is ready to install it in a piping system.

Write No. 38 on Inquiry Card—Page 32

G-E 1hp motor
New Extra Value

5



REVERSE ROTATION FAST

Now you can reverse Form G shaft rotation in less than 10 seconds

G-E Form G motors feature a new wiring method that lets you change rotation in seconds. Quick connectors make

changeovers fast and positive. Just switch the two motor leads on the terminal board. That's all. No need to order special motors to meet your rotation requirements. Require fast, easy rotation changes? Ask about this extra value.

702-82

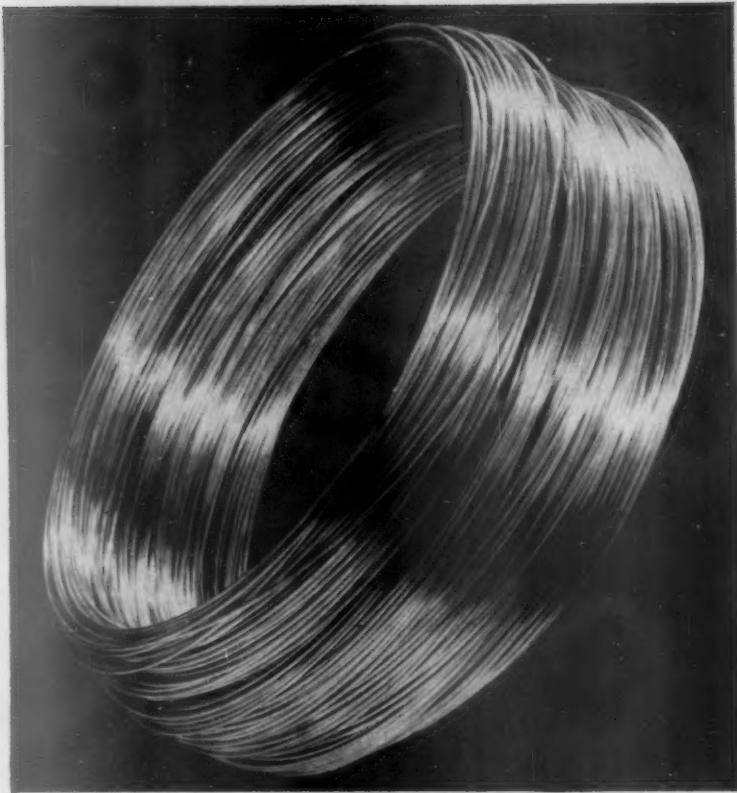


BUY NOW
FOR EXTRA
VALUE



GENERAL ELECTRIC

For More Information Write No. 232
on Inquiry Card—Page 32



from **CONTINENTAL**
a lustrous new
TINNED WIRE

Here's smoothness and luster you rarely get in tinned wire. Continental's special technique makes possible an enduring, uniformly bright finish . . . a wire so bright that it can replace plated wire on many products. It retains its brightness for long periods of time in normal use. Continental tinned wire meets your needs for quality and workability and is available in almost any temper and analysis in medium low carbon and low carbon steels.

FINE—16 gauge through 30 gauge, in 8" diameter coils

COARSE—20 gauge through $\frac{5}{16}$ ", in 16" and 22" diameter coils.

For smooth beauty and high degree of perfection in wire, you will want to investigate Continental Tinned Wire. Write or Telephone—today; or return coupon below.

FILL OUT AND RETURN COUPON TODAY

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Send Complete Details

Have Salesman Call

**CONTINENTAL STEEL
CORPORATION • KOKOMO, INDIANA**

PRODUCERS OF: Manufacturer's Wire in many sizes, temper, and finishes, including Galvanized, KOKOTE, Flame Sealed, Coppered, Tinned, Annealed, Liquor-Finished, Bright and special-shaped wire. Also Welded Wire Reinforcing and Galvanized Fabric, Nails, Continental Chain Link Fence, and other products.

For More Information Write No. 233 on Inquiry Card—Page 32

Products

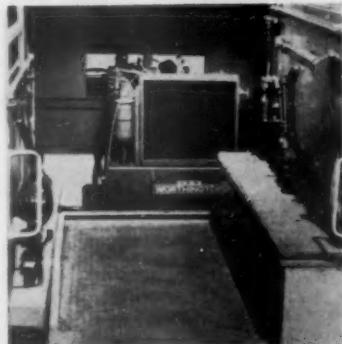
Electrical Shock-Proof Light



To safeguard maintenance men from electrical shock, a device, Saf-T-Lite, is now available for use with present day 110 v extension cords or trouble lamps. Model 60 of this device is supplied with a 2-foot rubber cord and receptacle on the output, or 6 v side. Any standard 110 v extension cord can be easily adapted by simply changing the present lamp to a 6 v, 50 watt type. When properly equipped, the extension cord can be plugged into the rubber receptacle of the safety device for shock proof operation. The device is made by the Hindle Transformer Co., Flemington, N.J.

Write No. 39 on Inquiry Card—Page 32

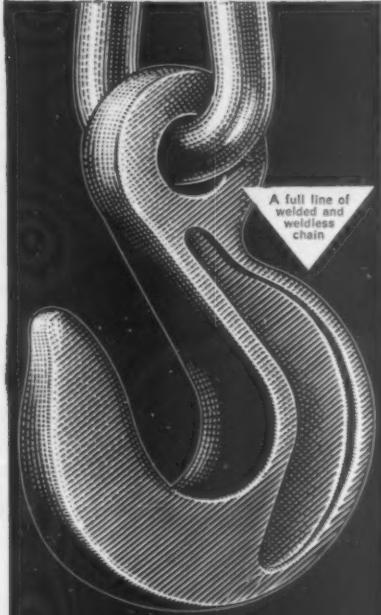
Truck-Mounted Rotary Air Compressor



A unique air compressor has been developed which derives all its power from the engine of the truck on which it is mounted. The power take-off unit is belt-driven and completely controlled from the cab. Its variable capacity con-

PATENTED

TAYCO HOOKS



A full line of welded and weldless chain

another advantage of

TM factory-made
alloy sling chains!

Pat. No. 2646306

Patented Tayco Hooks are the strongest on the market, for they are drop-forged from special alloy steel with exclusive I-Beam design! Uniform heat-treating, stress-free links, Taylor's quality control and Test Certificate on assembled sling are additional advantages of TM factory-made Alloy Slings. Call your distributor or send for Bulletin 13.

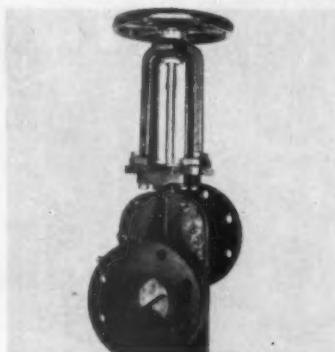
S. G. TAYLOR CHAIN CO., INC.
Hammond, Indiana
3505 Smallman St., Pittsburgh, Pa.

Taylor
Made
CHAIN
SINCE
1873

For More Information Write No. 234
on Inquiry Card—Page 32

trol allows it to produce more air than conventional reciprocating machines. A consistent delivery of 125 cfm of air is maintained at a pressure of 100 psi. The complete rotary compressor unit weighs 950 lb. Worthington Corp., Harrison, N.J., manufacturers it. Write No. 40 on Inquiry Card—Page 32

Valve Controls Uninterrupted Slurry Flow



A non-plugging, handwheel operated Ratogate valve has been designed for flow control of pulp stock and other slurries. Two design features assure reliable non-plugging performance. The Z-shaped body creates a controlled turbulence to keep particles in suspension. A diamond-shaped port prevents plugging at small valve openings. The valve is offered with either an iron or stainless steel body. Connection sizes are 3", 4", 6", 8", 10" and 12". Fischer & Porter Co., 753 Jacksonville Rd., Hatboro, Pa., make the valve.

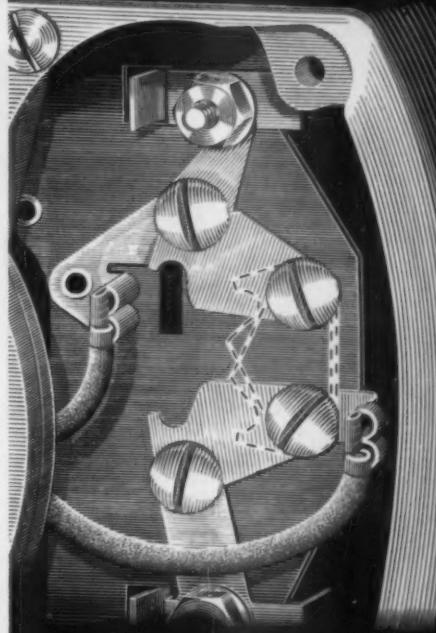
Write No. 41 on Inquiry Card—Page 32



"Are you sure they didn't overship
on this order?"

G-E fhp motor
New Extra Value

6



SWITCH VOLTAGE FAST

Unique sliding plates on terminal boards
simplify voltage changeovers

You can switch G-E Form G motors from 115 v to 230 v operation (or vice versa) in $\frac{1}{2}$ the time, without confusion and error, using only a screwdriver. Just loosen four screws, slide plates to new position, and tighten screws. Simple! No special tool are needed. Does your product operate on both voltages? If so, this extra value is for you.



GENERAL  ELECTRIC

For More Information Write No. 235
on Inquiry Card—Page 32→



SPECIALTY STEEL WAREHOUSE AVAILABLE

Fully stocked with the tool, stainless and special-purpose alloy steels you need. NO INVESTMENT, NO SPACE NEEDED, NO PROBLEMS for you. You get the steel you want when you want it. For immediate service, call your nearest Carpenter Service-Center. The Carpenter Steel Company, 182 W. Bern Street, Reading, Pa.

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and the c-
the passa-
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favorably
"Illustr-
attitude
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and their
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enemy."

The pap-
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Carpenter STEEL

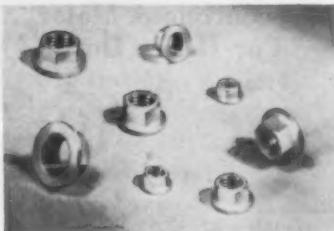
mill-branch warehouse service

mill-branch warehouses, offices and distributors in principal U.S. cities
consult your local telephone directory

For More Information Write No. 236 on Inquiry Card—Page 32

Products

Forged Nuts Lighter Than Steel Metal



Up to 72 percent of the weight of locknuts used for structural skin and panel assemblies in aircraft and military electronics equipments can be saved with a featherweight locknut. This is the claim of the manufacturer, Pressed Steel Co., Jenkintown Pa. The cold-forged nut is actually that much lighter in some sizes than the sheet metal nut it is designed to replace. The featherweight nut, designated Fn-12, will be used with aircraft tension and shear bolts in structural and sheet metal assemblies, bulkhead mountings of major components and other critical fastening appli-

cations in airframe and aircraft engine applications. It is available cadmium plated with or without molybdenum disulfide high-temperature coating.

Write No. 42 on Inquiry Card—Page 32

Latex Impregnated Paper For Tough Applications

A latex impregnated paper has tear strength, flexibility, wet strength and printability. This makes it suitable for book covers, auto bumper signs, labels and related applications where exposure or wear conditions are severe. Internal bond strength of the paper is of great importance in applications such as bumper labels or window banners where a pressure-sensitive backing is involved. Considerable internal strength is necessary in order to avoid splitting or delamination when the labels or banners are removed. The paper is made by Sorg Paper Company of Middletown, Ohio. The Chemigum latex used in the paper is made by Goodyear Tire & Rubber Co., Akron 16, Ohio.

Write No. 43 on Inquiry Card—Page 32

Save time and money—buy HALLOWELL steel collars

43 stock sizes from $\frac{1}{8}$ to 3 in. bore

Choice of knurled cup point or Nylok* self-locking set screws

Standard HALLOWELL solid steel collars are now available with two types of socket set screws: UNBRAKO self-locking knurled cup point or, where locking action is required with a plain cup or flat point or against extra hard shafts, UNBRAKO socket set screws with the Nylokself-locking feature. All collars size marked. Also solid and split cast iron collars in bore sizes up to $4\frac{15}{16}$ in. See your HALLOWELL distributor or write for Bulletin 868, Hallowell Collar Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

*T.M. Reg. U.S. Pat. Off., The Nylok Corporation



Jenkintown • Pennsylvania

Standard Pressed Steel Co. • The Cleveland Cap Screw Co. • Columbia Steel Equipment Co. • National Machine Products Co. • Nutt-Shel Co. • SPS Western • Standco Canada Ltd. • Unbrako Socket Screw Co., Ltd.

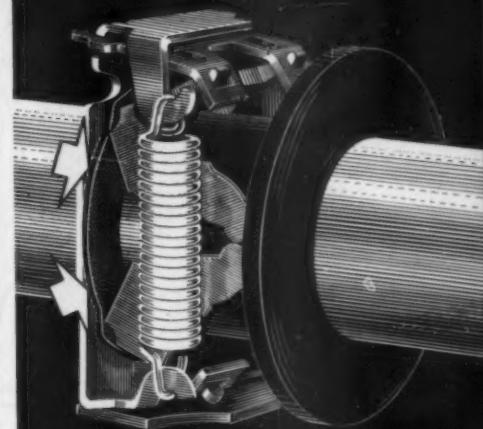
For More Information Write No. 237 on Inquiry Card—Page 32

For More Information Write No. 238
on Inquiry Card—Page 32

SEPTEMBER 15, 1958

G-E fhp motor
New Extra Value

7



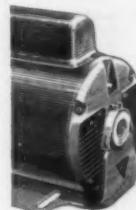
QUIETER SWITCHING

Specially designed washer effectively cushions start-stop switch click

The Form G's centrifugal switch is even quieter than before! A carefully designed composition washer now greatly reduces

start-stop click without sacrificing positive snap action. Add this to a switch that's dependable and rugged (3½ million test operations) and you get real extra value. Give it a listen. See if you notice a difference. Your customers will.

702-84



BUY NOW
FOR EXTRA
VALUES



GENERAL ELECTRIC

Products

Life in these excited states...

"We've been having trouble with corrosion in this section."



Corrosion is embarrassing

It's expensive, too. Not only in terms of equipment chewed up, but also in un-timely time losses and wasted ingredients. You save embarrassment and expense both with Ace chemical resistant piping, valves, pumps, tanks, and special lined equipment. 108 years' experience at your service.

Flexible poly pipe, ideal for water lines, drains, underground pipe or conduit. Sizes $\frac{1}{2}$ to 2", long coils, NSF-approved for drinking water. Bul. CE-57.



World's best chemical valves . . . at moderate prices. All-plastic, rubber-lined, or all-hard-rubber. $\frac{1}{8}$ " pet cocks to 24" gate valves.



ACE processing equipment of rubber and plastics

AMERICAN HARD RUBBER COMPANY
DIVISION OF AMERACE CORPORATION
Ace Road • Butler, New Jersey

For More Information Write No. 239 on Inquiry Card—Page 32

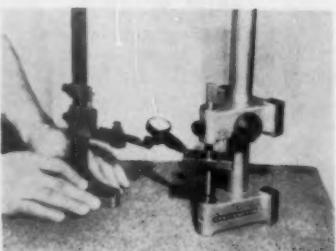
Synchronous Motor For Heavy Duty



An instantly reversible 80 inch ounce continuous duty synchronous motor is now available for heavy duty. Completely enclosed in a case, the motor measures only $2\frac{1}{2}$ " in diameter by $1\frac{3}{4}$ " long. Timing accuracy is maintained in both clockwise and counter-clockwise directions. Shaft rotation of the motor may be reversed as often as required without damage. Output speeds range from $2/3$ rpm to 3600 rpm. The motor, designated the RSM, weighs only 14 oz. It is manufactured by Hurst Tool & Mfg. Co., Inc., Princeton, Ind.

Write No. 44 on Inquiry Card—Page 32

Bench Center Aids Inspection of Small Parts



An instrument type bench center has been developed for inspecting small parts which are machined on centers. It is a precision device for checking concentricity, runout and squareness of face to axis. It also checks OD of miniature and subminiature parts and components. The two-way design of the instrument permits it to be used for either horizontal or vertical measurements. The

workpiece to be checked can be quickly set in place by loosening a single locking knob in the instrument. The manufacturer is The Taft-Peirce Mfg. Co., Woonsocket, R.I.

Write No. 45 on Inquiry Card—Page 32

Transparent Plastic Packaging System



A new type of transparent plastic packaging system eliminates the necessity for any kind of backing board. In the system, butyrate plastic sheet is heated

and drawn down skin-tight over the products being packaged so that they are enclosed and held securely by the clear plastic. Items to be packaged are positioned on slightly elevated locating fixtures on the machine. The butyrate plastic sheets feeds from a continuous roll to the forming area of the machine where it is heated to forming temperature then draped over the article being packaged. Vacuum is applied, which draws the softened sheet down over the sides and under the bottom edges of the article, thus almost completely enclosing it in a transparent protective cover. Available from Eastman Chemical Products, Inc., 260 Madison Avenue, New York 16, New York.

Write No. 46 on Inquiry Card—Page 32

**FOR MORE INFORMATION
USE INQUIRY CARD
PAGE 32**

Production costs too high? **BOSSERT METAL STAMPINGS** offer many ways to reduce costs!



Whether your product is in the planning stage or in production, you can often reduce costs by using metal stampings for parts or complete assemblies. Complex forms can usually be produced with fewer operations, with holes punched to exact dimensional accuracy, eliminating separate drilling, machining and assembling.

Several parts can be combined in a single stamping, and you can take advantage of the weight-saving features of lighter metals and alloys without sacrificing strength or durability. Your present production costs can be reduced, too, with Bossert's superior quality and dependable service.

Design Engineering Service

Bossert's re-design service can help you develop stampings for parts and assemblies that are now being cast or forged or machined, usually with substantial savings in cost. Send us blue prints or samples for our recommendations.

Write for literature
Find out how our facilities can be helpful to you.

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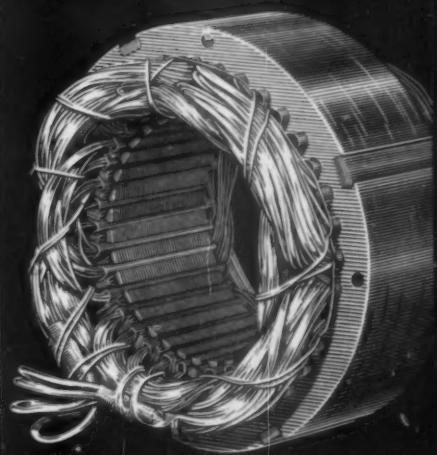
**ROCKWELL-STANDARD CORPORATION
STAMPING DIVISION**
1008 OSWEGO STREET
UTICA, NEW YORK

For More Information Write No. 240 on Inquiry Card—Page 32

For More Information Write No. 241
on Inquiry Card—Page 32→

**G-E fhp motor
New Extra Value**

8

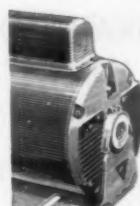


**LONGER
LIFE**

Heavy-duty bonding dip and stator clamps provide rigid, unitized assembly

Along with the Mylar*-Formex** insulation system pioneered by G.E., you now get a new bonding treatment on Form G

motor stators. It affords added protection against every type of stress. Stator cores are now specially clamped for highly accurate alignment. These new features result in extra rigidity, more uniform quality. Here's longer motor life!



*Reg. trade-mark, DuPont Co.
**Reg. trade-mark, G.E. Co.
702-85

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VALUES**



GENERAL ELECTRIC

WHEN IT'S

COPPER

YOU WANT
OR BRASS PRODUCTS

IT'S



7 CONVENIENT WAREHOUSES:

- **PITTSBURGH (19)** 2850 Second Ave.
- **CLEVELAND (3)** 5318 St. Clair Avenue
- **CINCINNATI (37)** 1045 Meta Drive
- **CHICAGO (18)** 3900 N. Elston Avenue
- **ST. LOUIS (1)** Central Terminal Building
- **PHILADELPHIA (30)** 1632 Fairmount Ave.
- **NEW YORK LONG ISLAND CITY (6)**
34-39 Thirty-first Street

C. G. HUSSEY & COMPANY

(Division of Copper Range Co.)

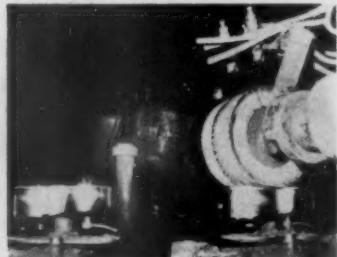
ROLLING MILLS and GENERAL OFFICES
PITTSBURGH 19, PA.



For More Information Write No. 242 on Inquiry Card—Page 32

Products

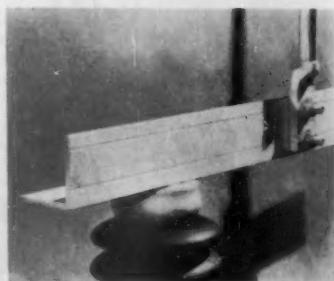
Liquid Buffing Compound
Speeds Parts to Anodizing



Buffing headlight shells with a liquid compound spray system has several advantages. These include limiting of abrasive action to where buff is in direct contact with the work, no loss of compound from breaking up, precision with which amount of compound can be metered out to the work, and easy maintenance. Liquid compound used can be cleaned from buffed parts simply with spray washer, solvent degreaser or an alkaline or di-phase emulsion soak followed by a hot alkaline spray. Shown in action is the Liquimatic spray system of the Hanson-Van Winkle-Munning Company, N. J. Elements of the system are air-operated pump in the compound reservoir, distribution lines and spray guns that deliver precisely metered quantities of liquid compound spray at intervals governed by a timer.

Write No. 47 on Inquiry Card—Page 32

Universal Angle Bus Conductor



Substantial savings for users of smaller sizes of tubular bus conductors are promised by Alu-

G-E fhp motor
New Extra Value

9

RIGHT FROM
OUR NEW,
MODERN
PLANT.
THE NEW...



- ✓ DUSTFREE
- ✓ BREAKDOWN RESISTANT
- ✓ LIGHTER IN WEIGHT
- ✓ MORE ABSORBENT



Write for

FREE SAMPLE

Mined, manufactured and guaranteed by
WAVERLY Petroleum Products Co.
1724 Chestnut St., Phila. 3, Pa.
Mine and Plant—Quality, Georgia
For More Information Write No. 244
on Inquiry Card—Page 32

minum Company of America with the introduction of its Universal Angle Bus Conductor (UABC). With the new extruded angle bus, direct bolted connection from cable connectors to bus is normally possible. Attachment to insulator supports is possible simply by using standard cap screws. A special convenience to users is a set of extruded lateral grooves. A pair of grooves, 1 3/4 inches apart, on each of the outer surfaces locates the center lines to drill holes for a standard tap. Single grooves on the inner surfaces locate the center line for drilling to attach directly to insulators. Aluminum Company of America, 1501 Alcoa Building, Pittsburgh 19, Pa.

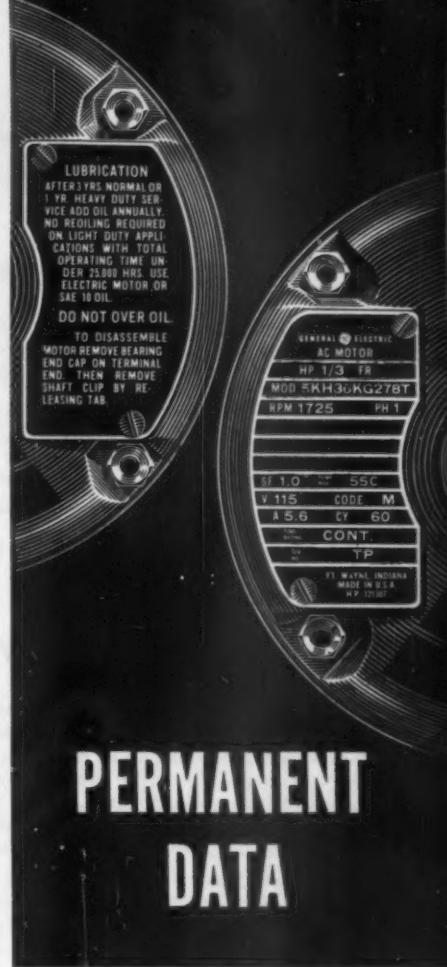
Write No. 49 on Inquiry Card—Page 32

Liquid Level Controls



Precise control of liquid level is obtained with a new type single-stage, narrow-differential liquid level control. Small movements between make-break contacts provides high sensitivity to level change. Liquids of specific gravity 0.30 and up, with temperatures up to 500 F, and pressures to 5000 psi can be handled by the new control. Displacers are available in many materials, including Karbate, porcelain, stainless steels. With stainless steel displacers, interface applications are also possible. The controls, designated as Magnetrol Models A-152-F and A-153-F, are available from Magnetrol, Inc., Chicago, Ill.

Write No. 50 on Inquiry Card—Page 32
For More Information Write No. 244
on Inquiry Card—Page 32→



PERMANENT DATA

Easy-to-read instructions and data simplify installation and servicing

Operating data on Form G motors is both legible and permanent to help you select, install and service without guess-

work. The nameplate is engraved, then paint-filled for extra readability. Oiling instructions are lithographed on the terminal box cover plate. Lets your customers know exactly how little maintenance is required. See this extra value!

702-86



BUY NOW
FOR EXTRA
VALUES



GENERAL ELECTRIC



WASHED WASHERS

promote Clean workmanship

Clean hands do better work, result in cleaner workmanship on the assembly line. With washed washers, workers hands stay clean. There is no grime, grease, graphite or other foreign matter to rub off on workers hands or on the work itself. Upholstery and woodwork is not soiled, metal components, painted and plated surfaces stay clean.

The new *washer washing* process, which also includes *rust resistant* treatment, recently introduced by Wrought Washer, is used on all popular sizes of U. S. Standard and S. A. E. Washers, on Rivet Burrs and Machinery Bushings. Add this new washing process to the consistent high quality for which Wrot Washers are noted and preferred . . . and you have a positive *Plus Value* at no extra cost!

If you use washers in your products . . . Wrot Washer can meet your requirements with every type, size, material and finish . . . and with quality that matches your own high standards. Write for Catalog No. 40.

VISIBLE packaging

shows you they're clean

Not only does our new special washing process dress up the washers themselves, they are now put up in attractive 1-lb. and 5-lb. packages with strong, transparent Mylar windows . . . to let you see how clean they are.

Your No. 1 Source for quality Washers

**WROUGHT WASHER
MANUFACTURING CO.**

The World's Largest Producer of Washers

2113 S. BAY ST., MILWAUKEE 7, WIS.

For More Information Write No. 245 on Inquiry Card—Page 32



Products

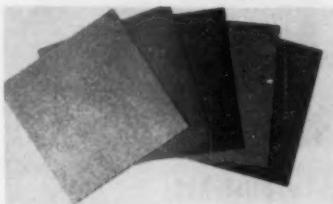
Glass Steel Increases Thermal Shock Resistance



A new glass steel increases thermal shock resistance by 30 percent. The glass steel, Glasteel 59, gives extended corrosion service life and 20 percent greater resistance to abrasion. Within recommended operating temperatures, Glasteel 59 provides added insurance against thermal shock damage where unexpected or unavoidable high temperature differentials are encountered. Glassteel 59 resists attack of all acids except hydrofluoric. It can be used with acids up to 325°F without corrosion damage. The product is available from The Pfaudler Co., 1072 West Avenue, Rochester 11, New York.

Write No. 51 on Inquiry Card—Page 32

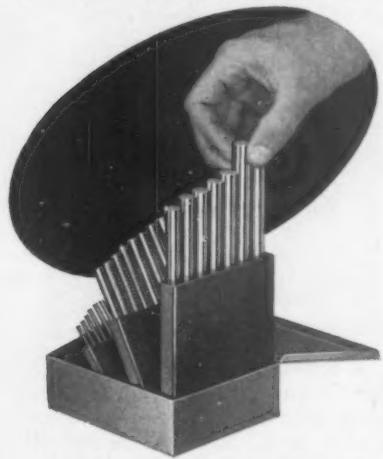
Vinyl-to-Metal Laminate



Fabrications are now possible where the strength, rigidity and impact resistance of metal can be combined with the beauty, color and texture of vinyl. This is the result of a new design material now on the market. It consists of solid vinyl film permanently fused by heat and pressure to chemically treated steel and aluminum. The laminate maybe deep drawn, bent, punch, roll formed, crimped, etc., with standard production techniques. The material is available in sheets to 32" x 144" and coils to 32" wide. American Nickeloid Co., Peru, Ill., is the manufacturer.

Write No. 52 on Inquiry Card—Page 32

Now available in 182 standard sizes to meet your exact requirements



ACE

hardened high speed steel DRILL BLANKS

These versatile, low-cost drill blanks are made of top quality, uniformly hardened high speed steel precision ground to exacting tolerances to meet the requirements of countless applications. Ideal for use as dowels, punches, knockout pins, gages, and rollers. Readily adaptable to form a wide variety of end cutting tools, too. And they're offered now in 182 standard stock sizes and in sets as shown.

Call your local Ace Drill Distributor today!

NEW CATALOG covers the entire line of Ace "Ground-from-the-Solid" High Speed Steel and Carbide Drills, Reamers, Drill Blanks and Special Drills. Send for it today!



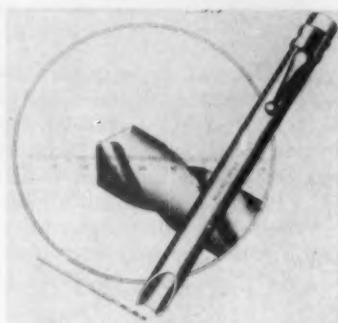
ACE DRILL

ADRIAN, MICHIGAN

ORIGINATORS OF "GROUND-FROM-THE-SOLID" DRILLS

For More Information Write No. 246
on Inquiry Card—Page 32

Pocket-Size Measuring Microscope



The Micro-Mike is a twenty-power pocket-size inspection and measuring microscope with a superimposed scale. An accurate, four-lens optical system contained in a lightweight metal casting provides a flat, undistorted field which is larger and brighter than any other instrument of this type. The superimposed scale, with .002 inch graduations, is internal and cannot be scratched or smeared. No adjustments are needed and no skill is required. Just focus and read. The Micro-Mike is adaptable to all phases of industry. It may be obtained from the manufacturer, DeMaurier Company, Elmira, New York.

Write No. 53 on Inquiry Card—Page 32

Hand Stroboscope Is Rugged and Simple

A rugged scientific instrument is useful for timing fly wheels and balance wheels in machinery, or for timing any constant speed, continuous cycle motion. To use, the stroboscope is held in the hand so that the handle is vertical and the disc is one to two inches from the eye. The disc is turned by the index finger. The moving object is then observed through the slits in the disc. When the motion of the object appears to have stopped completely, its frequency may be calculated accurately by multiplying the number of the disc revolutions per second by the number of slits in the disc. The disc of the stroboscope is made of semi-flexible black plastic material. Available on direct order from Edmund Scientific Co., Barrington, New Jersey.

Write No. 54 on Inquiry Card—Page 32

For More Information Write No. 247
on Inquiry Card—Page 32

Full line of
G E Form G
motors

10



NOW WITH NEW
EXTRA VALUE

Contact Your G-E Sales Engineer Today

Want more information about the new extra value features on General Electric Form G motors? Your General Electric Sales Engineer has all the facts. He also has a complete time schedule of the availability of these features on the motors for your applications. Why not call him today?

To:
Section C702-87
General Electric
Company
Schenectady, N. Y.



- Please send complete literature
 Please have a Sales Engineer call

NAME _____

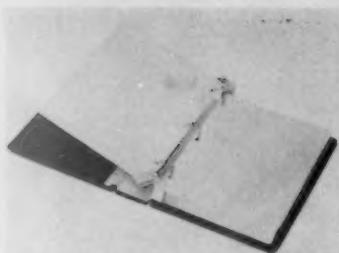
COMPANY _____

ADDRESS _____

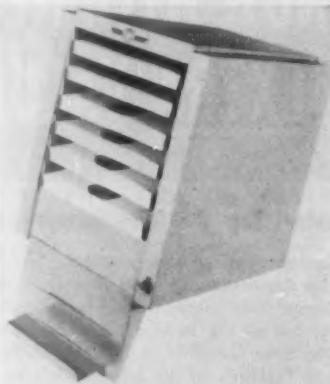
CITY _____ STATE _____

GENERAL ELECTRIC

Office Equipment and Supplies



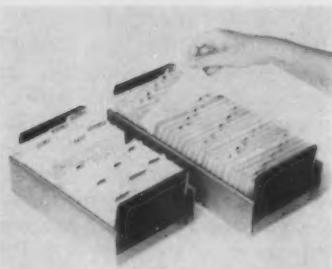
Stationers Loose Leaf Company, 246 E. Chicago Street, Milwaukee, Wisc., has developed a new catalog binder. Named the Swing-Hinge, the binder features a patented hinge which makes it unnecessary to dismantle the binder to remove or insert catalog sheets. The transfer bar remains permanently attached, swings sheets open or closed instantly, and automatically realigns the telescoping posts. The slide is also hinged so that it will drop flat against the cover when unlocked. Write No. 55 on Inquiry Card—Page 32



A new desk-top, portable electric collator, for gathering up to six sheets of paper into sets, was introduced by Thomas Collators, Inc., 50 Church Street, New York 7, New York. This collator will gather 120 sheets or 20 sets of six sheets each per minute. Each of the six bins holds 1 1/4" of 8 1/2 x 11 paper. Burred feed rollers assure positive contact with every sheet and minimize double sheet movement. Its single phase 60 cycle, 110-120 volt AC motor permits operation in almost any location.

Write No. 56 on Inquiry Card—Page 32

A portfolio of distinctive letterheads illustrating modern design trends is offered by **Byron Weston Company**, Dalton, Mass. Included are examples of business, industrial and professional letterheads executed by letterpress, lithography and die stamp engraving. Write No. 57 on Inquiry Card—Page 32



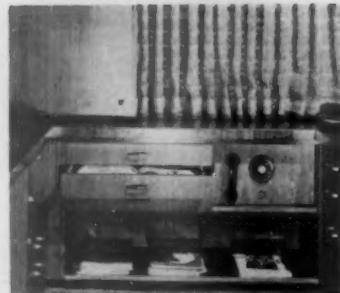
A new aluminum file tray to hold 3x5 index cards is available from **La Jolla Industries, Inc.**, 4606-16 Santa Fe Street, San Diego 9, Calif. The new tray is of golden anodized aluminum extrusions with follow blocks of jet-black, high impact styrene plastic. The caddy will fit standard desk drawers for use right at place of work.

Write No. 58 on Inquiry Card—Page 32



The **SoundScriber Corporation** of North Haven, Conn. has announced a new dictation, transcription, interview recording system in one portable package. The unit, called the 200-BIC, weighs six pounds, is powered by regular flashlight batteries and is capable of performing all three functions. The lightweight mike can be clipped to suit pocket or lapel, or laid on the table. Discussion may be edited, omitting unimportant material, with a transcription foot pedal or with dictation microphone start-stop button.

Write No. 59 on Inquiry Card—Page 32



A telephone panel designed by the Illinois Bell Telephone Company gets the phone off the executive desk. Mounted on a steel panel are 1) the receiver, 2) the dial at a 15-degree pitch for convenient use, and 3) the pickup keys and control keys for loud-speaking equipment. The panel also enables executives to speak via phone without removing the receiver from the panel hook. The panel is marketed as part of a 45-inch component walnut cabinet by **Office Suites, Inc.**, 21 W. Illinois St., Chicago.

Write No. 60 on Inquiry Card—Page 32



A lease-purchase plan, providing for application of lease payments toward the purchase price of engineering, drafting, and reproduction equipment is now offered by **Charles Bruning Company, Inc.**, 1800 West Central Road, Mount Prospect, Illinois. Bruning manufactures diazo-type reproduction machines and materials. The purpose of the plan is to make it possible for firms to install and utilize up-to-date engineering and reproduction equipment even though immediate funds for capital expenditures are limited.

Write No. 61 on Inquiry Card—Page 32



ONE OF THREE WAREHOUSES owned by The North Denver Transfer & Storage Co., Inc. in Denver, Colo.



J. G. MURRAY, Secretary-Treasurer of The North Denver Transfer & Storage Co., Inc.



EASE OF CONTROL and remarkable flexibility of National Accounting Machines permit all phases of accounting work to be handled with the same machine.

"Our *National* System saves us \$5,900 a year... pays for itself every 12 months."

—The North Denver Transfer & Storage Co., Inc. Denver, Colo.

"Our accounting set-up has been greatly simplified by our new National Bookkeeping System," writes J. G. Murray, Secretary-Treasurer of The North Denver Transfer & Storage Co., Inc. "As a result, it has made important time- and money-savings for us.

"With a National in our office, we have a far faster turn-over in accounts receivable for both freight payment and storage because billing reaches our customers more quickly. Our National has helped increase customer good will, too, by making

it possible to get end-of-month reports out on time. Thus, customers are better able to handle restocking procedures.

"By increasing our record-keeping efficiency, our National System saves us at least \$5,900 a year, pays for itself every 12 months."

Your business, too, can benefit from the increased efficiency and economy made possible by a National System. Nationals pay for themselves quickly through savings, then continue to return a regular yearly profit. National's world-wide service organization will protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages of your phone book.)

Secretary-Treasurer of The North Denver Transfer & Storage Co., Inc.

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio
1039 OFFICES IN 121 COUNTRIES • HELPING BUSINESS SAVE MONEY

*TRADE MARK REG. U. S. PAT. OFF.
National*
ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS
NCR PAPER (NO CARBON REQUIRED)



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for every branch office in 7 minutes**

"What we particularly like about xerography is the speed with which we get price changes to our branch offices and customers," says a sales manager.*

"Our catalog has 650 pages, listing some 15,000 items we carry in stock. We send out 30 to 60 new pages each week, showing price changes. Each

*Name and firm on request.



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new page is dated, assuring our customers in advance that the price listed in the catalog is the price they'll be charged.

"Thanks to xerography, we can make a price change on any item we carry, and in two or three minutes have the new listing copied onto an offset paper master ready for speedy, low-cost duplicating.

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ness, industry, and government to speed paperwork and save thousands of dollars yearly.

Write for proof-of-performance folders showing how firms of all sizes, are saving time and cutting duplicating costs by xerography.

HALOID XEROX INC.
58-285X Haloid Street, Rochester 3, N.Y.
Branch offices in principal U.S. and Canadian cities

**HALOID
XEROX**



Another leading company meets the big Profit Challenge of 1958 by increasing executive output with Edison Voicewriter dictation.

Discovered: new manhours...

Hammond Map Company executives find more planning and selling time with Edison Voicewriter

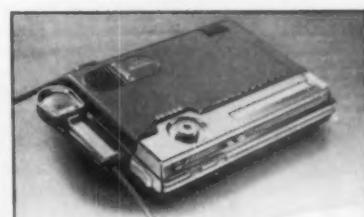
"Our organization moves at such a fast pace that we just can't afford to have executives tied up with paper work," reports Caleb D. Hammond, President of C. S. Hammond & Co., Maplewood, N. J. "That's why we equipped 100% of our key personnel with the Edison Voicewriter. Now they dictate the minute they're ready . . . in the office or on the road. Voicewriter has saved hours for planning and selling . . . while reducing paper work costs and increasing the efficiency of our stenographic force."

A Voicewriter tryout is easy! There's no need to start off with a large system. With the Edison Voicewriter VPC-1, doubling as a dictating instrument and secretarial transcriber, any executive can quickly clean up corre-

spondence at his desk, at home, or on the road . . . have time for other important tasks, for only \$17.81 a month.

Secretaries like the Voicewriter, too! Your voice comes through accurately, without interruptions, on the Voicewriter Diamond Disc. With the ability to get correspondence out of the way faster, with less effort, your secretary will have more time for the interesting responsibilities of a real "Girl Friday."

You can rely on Edison! There's a Voicewriter system to meet the correspondence requirements of any office, large or small. And every Voicewriter user enjoys the benefits of Edison's more than 70 years' experience in the office correspondence field.



Let us prove that
you will profit with Voicewriter!

Now's the time to find out just what Edison Voicewriter . . . real dictating equipment . . . can do for you. See how much more it offers over the so-called economy makes! For a free demonstration—or literature—write Dept. PM915 at the address below.

Edison Voicewriter • a product of Thomas A. Edison Industries

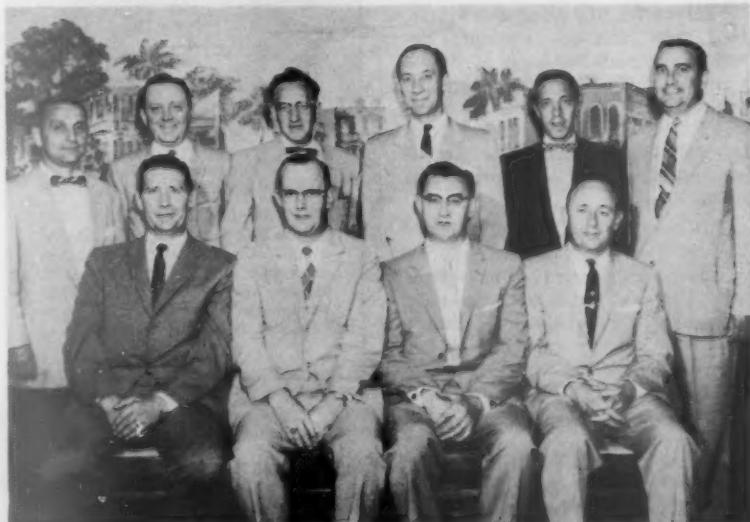
Thomas A. Edison Industries, West Orange, N. J.—In Canada: 32 Front Street W., Toronto, Ontario

Association News



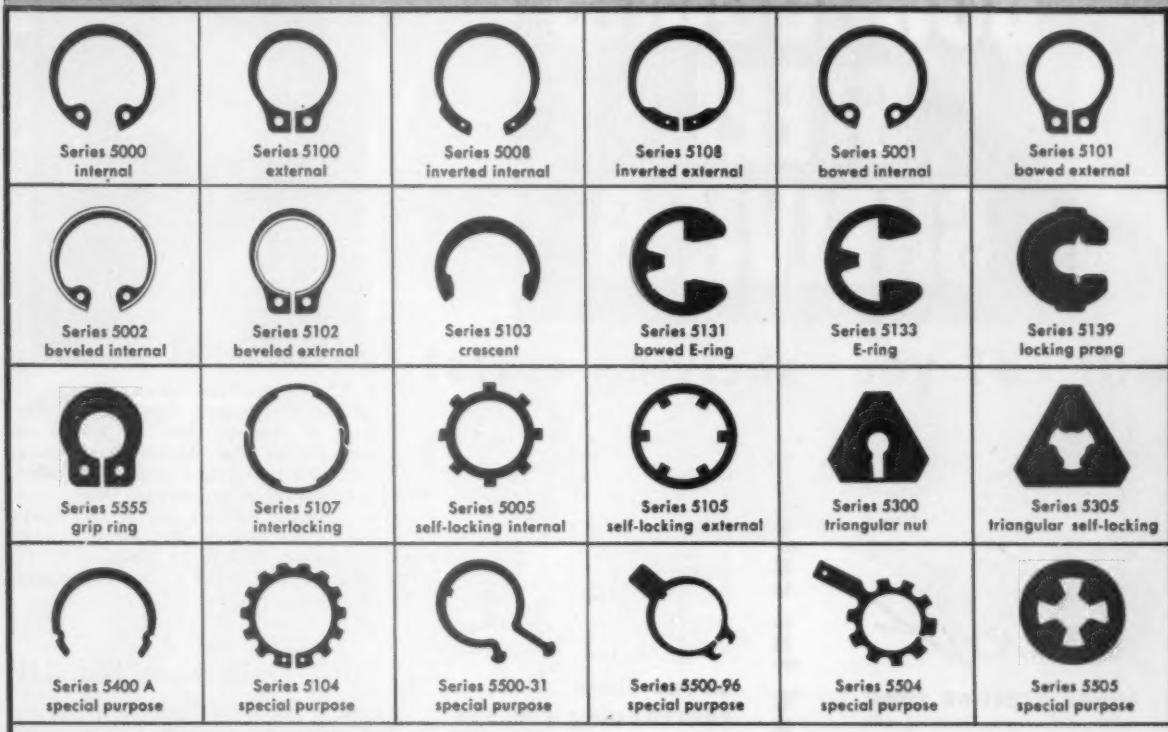
The Milwaukee Association of Purchasing Agents held a seminar for these seventeen foreign purchasing agents. Seated, left to right, are Luis Moreno, Bolivia; Nguyenduy Thuluong, Vietnam; Franklin Barrientos, Costa Rica; Abdul Hadi, Afghanistan. Standing, middle row, left to right, are Andre Monde, Haiti; Nick Mohammad, Afghanistan; William Harris, City of Milwaukee; Abelardo Castro, Bolivia; Kassah Bezabeh, Ethiopia; Rene Yepez, Ecuador. Top row, left to right, are Bekkele Berhane, Ethiopia; Sahib Al-Jassim, Iraq; Tran-Manh Hoan, Vietnam; Aman Zafar, Pakistan; Saeed Rizvi, Pakistan.

The Little Rock Association of Purchasing Agents elected their new officers. They are, left to right, J. K. Chambers, president; Carl Wallace, 1st vice president; Richard Jones, director; Clifford Young, secretary; Lon Griffin, national director; Kenneth Crain, treasurer; H. R. Bean, 2nd vice president.



Shown here are the new officers of the Buffalo Purchasing Agents Association. Seated, left to right, are Ray Berg, secretary; Lyman Davis, president; James Gleason, 1st vice president; Harry O'Grady, treasurer. Standing, left to right, are Earl Scheelar, director; Russell Unrich, director; Harold Carson, director; Clifford McNaboe, 2nd vice president; Michael Centanni, director; Ken Albrecht.

6 Reasons why Waldes Truarc is your one dependable source for retaining rings



**WHATEVER YOU MAKE, THERE'S A WALDES TRUARC RING
DESIGNED TO SAVE YOU MATERIAL, MACHINING AND LABOR COSTS**

COMPLETE SELECTION—All your retaining ring requirements can be obtained from this one dependable source. Waldes Truarc rings are available in 36 functionally different types...as many as 97 standard sizes within a ring type...5 metal specifications and 14 different finishes.

MANUFACTURING EXPERIENCE—Waldes Truarc pioneered precision retaining rings. Truarc Rings have been standardized by leading U. S. industries' and Government agencies. Waldes Kohinoor, Inc. has over 50-years experience in inventing, developing, and manufacturing precision fasteners.

QUALITY CONTROL—Every step in the manufacture of Waldes Truarc rings—from engineering and raw materials through to the finished product—is carefully controlled and tested in our own modern plant. Truarc standards are the highest in the industry—your guarantee of consistent, uniform quality.

DESIGN SERVICE—For help in designing new products or in refining present designs, send your blueprints to Waldes Truarc engineers. Whether your product requires standard or custom-designed rings, these experts are ready to help you. They will also design special assembly jigs and fixtures—or even help you set up an automation assembly operation.

FIELD ENGINEERING SERVICE—More than 30 engineering-minded factory representatives and 700 field men are available to you on call! This engineering service can prove invaluable in helping you to solve design, assembly and production problems.

DISTRIBUTION—Truarc rings are available from leading OEM Distributors in 90 stocking points throughout the United States and Canada.



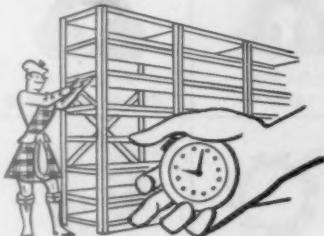
WALDES TRUARC® RETAINING RINGS
WALDES KOHINOOR, INC.
LONG ISLAND CITY 1, NEW YORK

WALDES TRUARC Retaining Rings, Grooving Tools, Pliers, Applicators and Dispensers are protected by one or more of the following U. S. Patents: 2,382,948; 2,411,426; 2,411,761; 2,416,852; 2,420,921; 2,428,341; 2,439,785; 2,441,846; 2,455,165; 2,483,379; 2,483,380; 2,483,383; 2,487,802; 2,487,803; 2,491,306; 2,491,310; 2,509,081; 2,544,631; 2,546,616; 2,547,263; 2,558,704; 2,574,034; 2,577,319; 2,595,787, and other U. S. Patents pending. Equal patent protection established in foreign countries.

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BORROUGHS STEEL SHELVING

will CUT your shelving costs!



saves erection time

Fewer parts . . . no fumbling with studs, tricky locks, bolts, nuts or lock washers

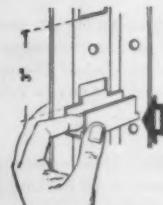
send for catalog!



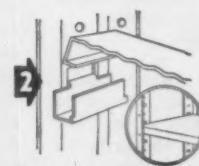
saves time rearranging shelves

No lost motion . . . you can change a shelf in seconds

First of all, Borroughs Steel Shelving is the most simple and most rapidly assembled steel shelving on the market. From the very start of its installation, it cuts your shelving costs. Except for the top shelf (2 bolts and 2 nuts), no other bolts or nuts are required for shelves. You need no special tools for assembly. Each individual unit is complete in itself . . . no part depends on unit next to it . . . any unit can be moved independently. Send for catalog and get all the facts.



Insert shelf support bracket . . . no fumbling with studs, bolts, nuts or lock washers.



Tilt shelf into support bracket . . . and shelf is ready for loading.



It's hot off the press! Revised 36-page illustrated catalog featuring Borroughs Steel Shelving. Send for your copy today.

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OF KALAMAZOO

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

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For More Information Write No. 252 on Inquiry Card—Page 32

Association News

New Akron Association President



E. G. Berglund was elected president of the Purchasing Agents Association of Akron. He has served as director of the Akron Association for past two years and has headed the education committee. Other new association officers are W. P. Bray, Firestone Tire & Rubber Co., vice president; and S. L. Musson, R. C. Musson Rubber Co., secretary and treasurer.

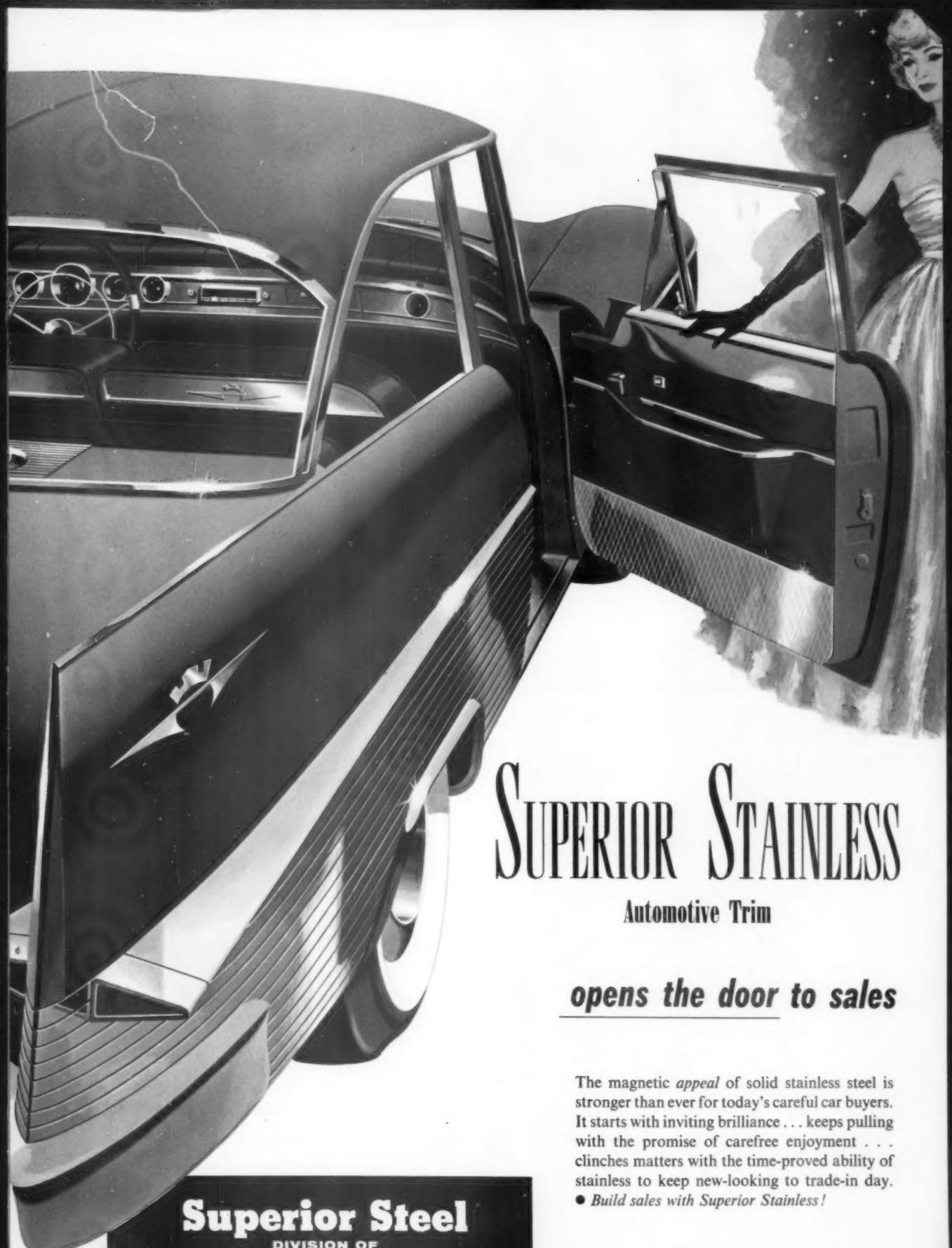
NIGP Conference, Oct. 5-8

The National Institute of Governmental Purchasing will hold its thirteenth annual conference and Products Exhibit at the Statler Hilton Hotel in Boston, Massachusetts, on October 5-8, 1958.

A fine professional program is being arranged. It offers practical solutions to daily problems. A products exhibit by ninety leading American companies will be an educational feature of the Conference. Industrial plant visits will be made on the afternoon of October 8 following the closing of the Conference and on the morning of October 9.

A delightful program of sightseeing and entertainment is also being prepared for delegates and their families. At the traditional NIGP Sunday evening supper on October 5, the Institute will present a variety musical entertainment by the Golden Curtain Quartette under the direction of Kurt Adler, noted conductor of the Metropolitan Opera. The supper will be preceded by a reception.

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PURCHASING



SUPERIOR STAINLESS

Automotive Trim

opens the door to sales

The magnetic appeal of solid stainless steel is stronger than ever for today's careful car buyers. It starts with inviting brilliance . . . keeps pulling with the promise of carefree enjoyment . . . clinches matters with the time-proved ability of stainless to keep new-looking to trade-in day.

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Superior Steel

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Association News

Chicago Ass'n Will Hold Purchasing Workshop, Oct. 21, 22

The Purchasing Agents Association of Chicago, will again hold its two day purchasing workshop on October 21, 22, 1958.

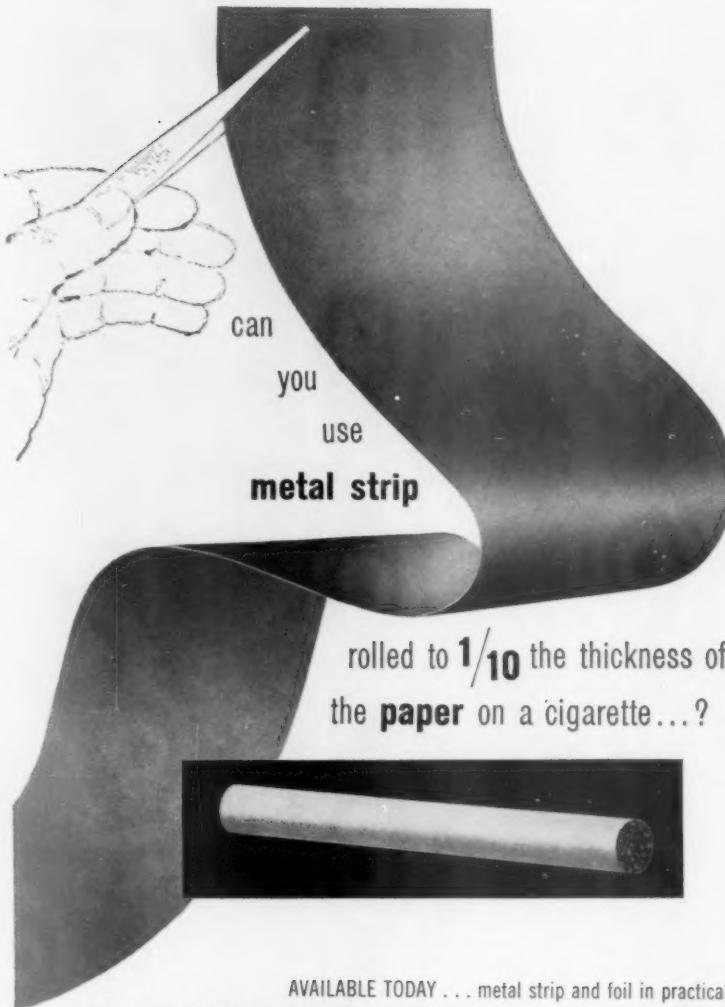
The Purchasing Workshop will be held at and is sponsored by: Illinois Institute of Technology—Department of Business and Economics, 33rd and State Street, Chicago, Illinois.

Outstanding discussion leaders have been engaged to help solve important problems confronting all purchasing personnel today. All problems presented to the Workshop will be discussed. This is not a lecture course, but is an actual workshop where one can participate with other purchasing people and experts to help solve purchasing problems and derive valuable information.

Most of the sessions will be in small groups covering the following subjects: inventory control, value analysis, measuring purchasing performance, internal departmental relationship, vendor relations and sources, legal aspects of purchasing, purchasing procedure and organization, and data processing.

A daily luncheon features excellent speakers. Mr. Henry E. Seyfarth, one of the pioneers of the St. Lawrence Seaway, will bring everyone up-to-date on water transportation.

Registration blanks may be obtained by contacting the Purchasing Agents Association of Chicago, 134 N. LaSalle Street, Chicago 2, Illinois — Telephone: State 2-1940.



AVAILABLE TODAY . . . metal strip and foil in practically any alloy, rolled to thicknesses ranging from .010" to .0001". (The thickness of cigarette paper is .00125".) The Precision Metals Division of Hamilton Watch Company is today producing these materials in quantities for either developmental work or production, meeting exact mechanical, magnetic and physical specifications.

Precision Metals Division, established by Hamilton to provide special metallurgical services in the manufacture of fine American watches, is a modern, completely integrated plant geared to precision production. Special alloys, developed to customer specifications, are also available in whatever form required.

With emphasis today on miniaturization and sub-miniaturization, these precision materials are helping to solve problems in many industries. To find out more about these unique metallurgical services, write today for a copy of this new facilities booklet. Write on your letterhead to Dept. P-9.



Hamilton Watch Company

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Creator of the world's first electric watch

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PAGE 32**

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PURCHASING

The Ludlow Line Protects Your Products Better

The growing uses for Ludlow's poly-coated papers...



After an 1800-mile trip, these rose bushes ("poly-wrapped" without peat moss) arrived fresh from Texas grower, ready for planting by Massachusetts customer.

"Wet it — wrap it — ship it!" — That's the fast-and-easy formula used by Nurserymen who use Ludlow's NURSERY-WRAP. Polyethylene-coated NURSERY-WRAP seals in freshness — eliminates the need for peat moss and reduces shipping costs.

Your products, too, might benefit from one of Ludlow's poly-coated papers. There's nothing better for keeping liquids, greases and oils either in or out of your packages. One of these papers — Ludlow's world-famous INDUWRAP — is fully approved for government greaseproof packaging.

Drop us a line asking for detailed information on our extensive line of poly-coated papers. It could mean important savings for your company. Look to Ludlow for greater protection, lower costs and faster packaging. We'll consider it a privilege to serve you.



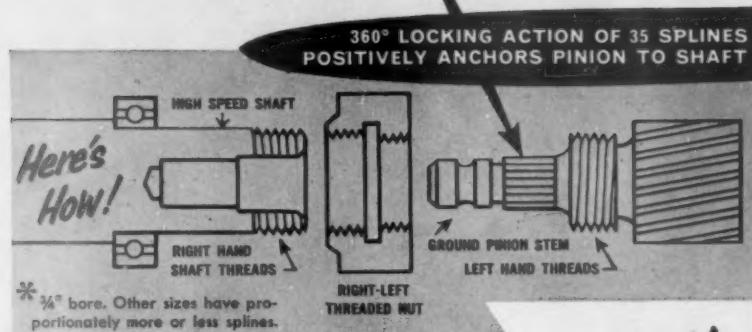
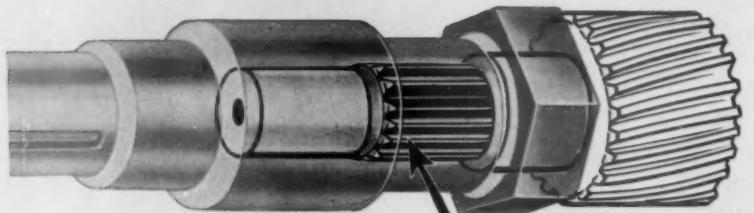
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FOOTE BROS. SPLINE DRIVE PINION

Takes 35 "Bites" *

to guarantee better power transmission



SPLINE DRIVE PINION

advantages:

1. MORE LOCKING AREA

Self-broaching splines provide more internal locking surface than any other pinion ... assure positive anchoring, even under reversing conditions.

2. GREATER STRENGTH

Gear and shank are machined from one piece. Solid construction and spline lock provide greater strength—no weakness due to projecting keyway.

3. PERMANENT, ACCURATE ALIGNMENT

Self-centering action of ground pinion shank in the accurately bored high speed shaft assures accurate assembly and alignment for smoother performance.

4. DUTI-RATED GEARING

Foot Bros. Spline Drive Pinions have the famous Duti-Rated Gear—harder, tougher and more accurate, with greater load carrying capacity for their size than any other gearing.

SPLINE DRIVE PINIONS are another example of Foote Bros. leadership... another reason you can be sure you're buying the finest when you buy Foote Bros. Power Transmission Equipment.

this trademark
stands for the
finest industrial
gearing made



FOOTE BROS.
Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION
South Western Boulevard
Chicago 9, Illinois

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Association News

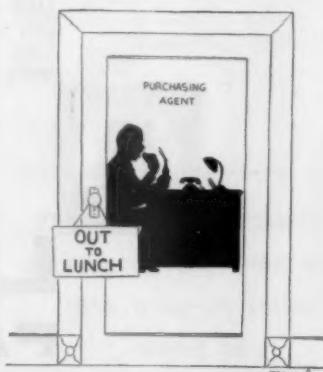
Dayton PA Conference, Oct. 23-24

The third annual procurement conference sponsored by the University of Dayton and the Dayton Association of Purchasing Agents will be conducted in Dayton, Ohio, Oct. 23-24.

Scheduled on the two-day program are Dr. Howard T. Lewis, professor emeritus of the Harvard University graduate school of business administration; Harold O. Rice, president of the Dayton association; Ted R. Thompson, vice president of District six, NAPA, and education chairman of the Dayton association; C. Warner McVicar, director of purchasing and traffic, Rockwell Manufacturing Co., Pittsburgh, and Richard Rice, director of purchases, Clyde division, Whirlpool Corporation, and others.

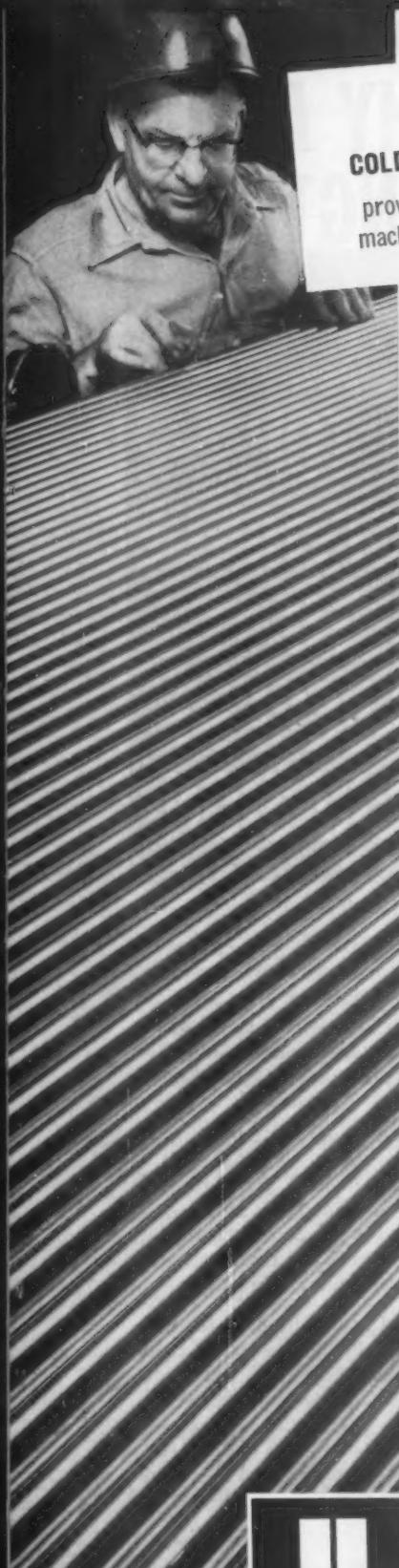
Topics to be covered during the conference include Forecasting—With Special Reference to Inventory Control; Value Analysis; The Value of Purchasing Manuals to Purchasing and Management; The Procurement Function and the Purchasing Agent; Purchasing for Small Companies, Reports to Management; Operation Cooperation; Cost Reduction Through Standardization and Future Trends in Procurement.

Detailed information on the conference is available from Prof. John B. Steinbruegge, director of specialized educational services, University of Dayton, Dayton 9, Ohio.



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PURCHASING



J&L
COLD FINISHED BARS
provide superior finish,
machinability, uniformity



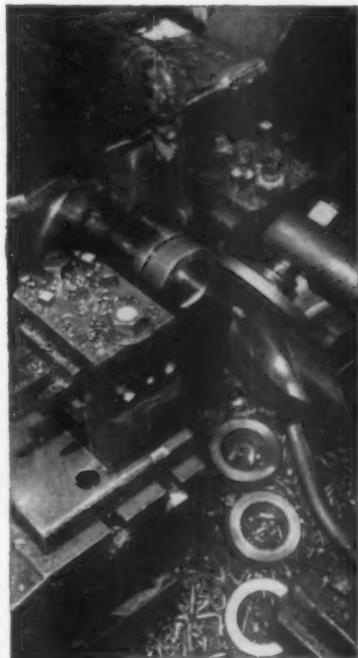
"ten tough production steps prove superiority of J&L cold finished bars"

These 3½" round nuts for the hydraulic mechanism of a heavy duty tractor are machined by the Industrial Nut Corporation, Sandusky, Ohio, from J&L cold finished 1045 leaded steel bars.

Nut blanks are cut from the bar, countersunk, chamfered, heat-treated, slotted on two sides, reamed, tapped, drilled with five holes, grooved on the outside edge and faced. "J&L 1045 leaded steel bars meet our exacting quality specifications for these operations," states Mr. Del Allen, foreman with Industrial Nut.

Machining perfection like this is possible in your operations with J&L cold finished steel bars—quality-controlled from ore to finished steel. A J&L steel specialist can recommend exactly the right steel for any job from J&L's complete cold finished line. Ask him to show you samples of J&L's improved Bright-Drawn finish, the "new look" in cold drawn bars.

For faster cutting speeds, longer tool life, improved finishes, specify J&L cold finished bars on your next job. Call your distributor, or write to Jones & Laughlin Steel Corporation, Dept. 498, 3 Gateway Center, Pittsburgh 30, Pa.



On a single-spindle screw machine, a 3½ inch round nut blank is cut from J&L cold finished 1045 leaded steel bars, countersunk and chamfered. The complete 10-step production is a real test of steel quality.



Jones & Laughlin Steel Corporation

PITTSBURGH, PENNSYLVANIA

A FREE COST-CUTTING CONSULTANT



Your local Industrial Distributor has gained wide experience in serving many industries and in providing solutions to a variety of production problems. His service begins with an idea — a cost-cutting idea in the form of a product or method which he is willing to suggest at no charge to you.

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He frequently recommends Anderson wire brushes for those jobs requiring production efficiency with top quality results.

For lowest cost per unit processed select: Anderson.

Write for complete catalog of wire brushes with detailed selection and operation data.

Anderson

ANDERSON CORPORATION

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Association News

Georgia Ass'n Elects
McDonald



President J. T. McDonald

The Purchasing Agents Association of Georgia elected J. T. McDonald president for the coming year. McDonald is purchasing agent for Link Belt Co. and has been with that company since 1936. He graduated from Winder Georgia High School and studied accounting at Draughn School of Commerce. McDonald had served the Georgia Association in the capacity of second vice president and as first vice president before being named president.

He is lay worker and supply pastor at Oakland City Baptist Church. His wife is the former Jesse Winfred Bishop of Gainesville. They have a daughter and two sons.

Other officers elected are First Vice President Joe C. Reeves, Atlanta Newspapers, Inc.; Second Vice President R. E. Dunn, H. W. Lay Co.; Treasurer Arden C. Taylor, Trust Company of Georgia; Secretary Mrs. Marie Sayne, Atlanta Gas Light Company; directors as follows: R. N. Patrick, Plantation Pipe Line; George Winship, Jr. Fulton Supply Company; and M. R. Hendricks, Pye-Barker Supply Co.; and as national director, Ken Halverson of Ford Motor Company.

Upon the naming of McDonald, outgoing President Ken Halverson turned over to the new chief the massive files and records of (Please turn to page 138)

WHY AIRCO TUNGTUBE?

*because
it gives
you*

TOP RESISTANCE TO SEVEREST ABRASION

* Airco Tungtube electrodes are pure tungsten carbide — next to diamonds, the hardest commercial material known.

* Tungtube is outstanding for use in hardfacing grinding wheels, drill bits, metal working machinery . . .

Airco Tungtube comes in screen sizes 10-20, 20-30, 30-40, and 30-down. In both bare rod and coated form. Accepted as standard for cutting non-metallic substances such as coal, shale, and granite.

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Missing Something ?



The Answer is Pink !



Switch to ^{PINK} CIMCOOL

Stay on top of every situation with CIMCOOL® S2 Concentrate, world's largest selling chemical cutting fluid. Float along comfortably, sure that your cutting problems are cushioned by this radically new and different coolant. Switch to CIMCOOL and relax, because CIMCOOL does all this—

CIMCOOL LOWERS COSTS because it's longer lasting in machines. Therefore, it reduces downtime and cuts labor costs for cleaning and changing.

CIMCOOL PERMITS FASTER SPEEDS and feeds, because of its chemical lubricity. It combines friction reduction and cooling capacity in a degree never before attained by old fashioned lubricants.

CIMCOOL IS CLEANER TO USE because it doesn't soil hands or clothing. It contains no skin irritants. And it's safer because it leaves no slippery film on shoes, floor, machine or work. It can't smoke, can't burn and virtually eliminates rancidity and foul odors.

So swim with the tide of people who are switching to CIMCOOL. Call your CIMCOOL Distributor today. He'll be glad to give you full information on all the advantages of CIMCOOL concentrate—as well as details on the entire family of CIMCOOL Cutting Fluids. Or contact us direct and we'll have one of our Cincinnati Milling Machine trained machinists call on you—without cost or obligation, of course. Write, wire or phone Sales Manager, Cincinnati Milling Products Division, Cincinnati 9, Ohio.

CIMCOOL CUTTING FLUIDS

CIMCOOL S2 Concentrate—The famous pink fluid which still covers 85% of all metal cutting jobs. Effective, economical and clean.

CIMPLUS—The transparent grinding fluid with exceptional rust control. Also used for machining cast iron and as a water conditioner with CIMCOOL Concentrate.

CIMCUT Concentrates (AA, NC, SS)—For jobs requiring oil-base cutting fluids. Added to mineral oils, they give economical mixes for higher speeds and feeds.

CIMCOOL Tapping Compound—Permits the use of highest tapping speeds and increases tap life amazingly.

Also, **CIMCOOL Bactericide** and **CIMCOOL Machine Cleaner**.

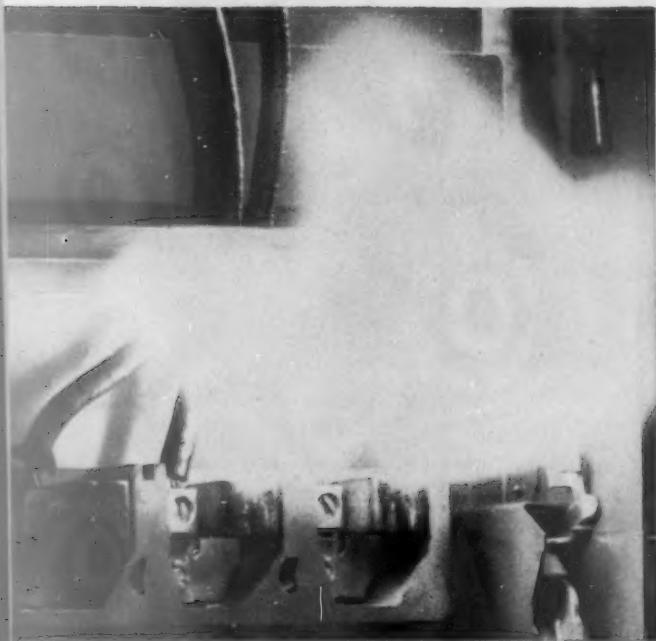


for 100% of all metal cutting jobs. The Answer is Pink!

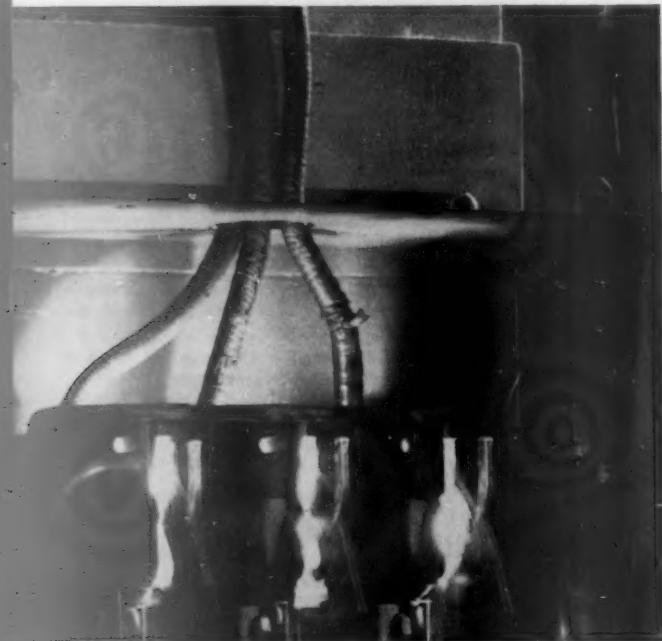
Production-proved products of The Cincinnati Milling Machine Co.

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FOR SAFETY'S SAKE:



1. RUINOUS ARC in open knifeblade switch. At moment of "break" a flash explosion occurs. Blades pit, burn, deteriorate. Danger of fire is ever-present in open blade switches.



2. SUBDUES ARC in modified knifeblade switch. Closures or "quenchers" retard arcing slightly, but since blades must ultimately be pulled clear of closures the hazards still exist.



3. MAXIMUM SAFETY found only in BullDog Vacu-Break* Safety Switches. Arcing is confined inside compact Vacu-Break chambers. Arcs are snuffed out before they can cause any serious damage.

Unretouched photographs of the arc in 100-amp 600-volt switches operating under 90-amp 440-volt load with 40% to 50% power factor. All pictures taken at exact instant of "break".

Let's take a good, long look at safety in today's safety switches

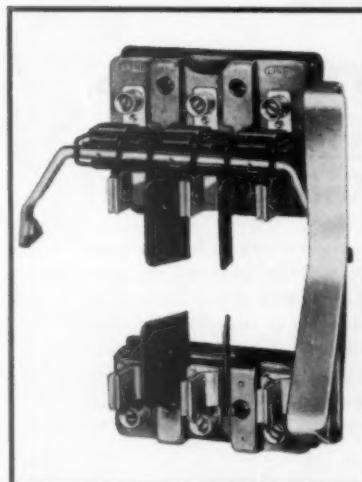
T

HERE'S A BIG DIFFERENCE in safety switches—a difference between maximum safety and half-way safety . . . low maintenance and excessive maintenance. These differences are quickly apparent when you compare BullDog Vacu-Break® Safety Switches with the other main type—the open knifeblade switch.

BULLDOG discarded the knifeblade design twenty years ago when they engineered the Vacu-Break. It is based on the engineering principle that an arc is the least destructive or dangerous if confined in an arc chamber which limits the oxygen supply . . . actually starves the arc before it can build up. "Explosions" are non-existent . . . the need for maintenance of contact points is virtually eliminated. Today, only BullDog has the Vacu-Break or anything like it. And it is available at no extra cost on both the Master and Junior types.

OPERATION of the Vacu-Break is simple, sure and safe. A sturdy rod attached to the operating handle is clamped directly to the Vacu-Break heads. When the handle is pushed "Off", this rod literally yanks the heads away from the stationary contacts. *Double "break" action is quick, foolproof.* Unlike knifeblade types, you need not depend on tricky spring and trigger mechanisms. You don't have to open the switch cover and check to see that contact has been broken!

100,000 AMP TEST. BullDog Vacu-Break Safety Switches, when used with current-limiting type Amp-traps**, will withstand the most severe fault currents. In recent tests standard BullDog switches with Amp-traps have been subjected to a 100,000 amp short circuit current. *The switches were undamaged!*

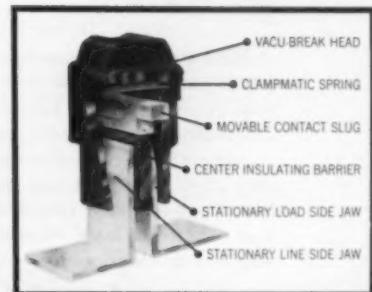


Vacu-Break heads are connected directly to the switch handle. No toggles or triggers, no tricky springs . . . no danger of switching failure. One of several exclusive BullDog Vacu-Break features that set the performance standards for the industry.

THE CLAMPMATIC ASSEMBLY (see the illustration below) is another safety feature of BullDog Vacu-Break Safety Switches. It gives bolt-tight contact in the "On" position, helps accelerate "break" when the switch is pushed "Off".

VALUE. You pay no more for Vacu-Break Safety Switches . . . yet you get the maximum in safety and full-time performance. Compare—and you'll buy BullDog. See your electrical distributor, contractor, or call a BullDog field engineer.

© BEPCO



Close-up of Vacu-Break head shows movable contact slug inside the compact, oxygen-limiting chamber. Clampmatic assembly assures bolt-tight contact, speeds "break". This combination guarantees positive, safe operation, long switch life.

B U L D O G

BullDog Electric Products Company, Division of I-T-E Circuit Breaker Company,
Detroit 32, Mich. *BullDog Export Division: 13 East 40th St., New York 16, N.Y.*
In Canada: BullDog Electric Products Co. (Canada) Ltd., 80 Clayton Rd., Toronto 15, Ont.

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** Amp-Trap is a registered trademark of the Chan-Shawmut Company.

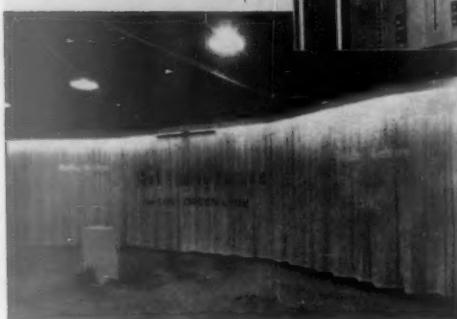


*Mayflower sets
them up...and
takes 'em down!*

*One...to
get ready!*



*Two...for
the show!*



Mayflower Care Saves Costs, Gets Your Routed Exhibits In Safely... And On Time!

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Ask for "17 Reasons Why"—a practical exhibit guide.

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For More Information Write No. 262 on Inquiry Card—Page 32

Association News

(Continued from page 134)

the PAAG. The files were encased in a large box embellished with cartoons depicting the new president hammering away at an unending rock pile while the ex-president tipped off to Chicago for the NAPA Convention.

In his farewell as president, Halverson praised the spirit of the members of the Georgia Association. "It is through this spirit that we have made such progress" he said, and he stated that he looks for greater achievement ahead.

Guest speaker for the meeting, Rev. Hubert A. White, philosopher, humorist and Methodist minister, recalled some of the high hurdles of his life and related them in a most entertaining manner.

One new member was added at this meeting. He is Lawrence H. Irvin of the Lassiter Corp., Ga. Div. Inc.

A later meeting of the Association was held at the Progressive Club. Several items of important business were discussed and approved.

The long discussed Business Buyers Group is now under way. Much ground work has been laid. President J. T. McDonald named Howard Baer as Chairman. A \$1,955.00 budget was adopted for 58-59, and a library committee was named. A purchasing course being planned for early '59 is something many have been seeking for several months. A date will be established soon.

September will be a great month, not only for the Purchasing Agents' Association of Georgia but also for the 7th District. The meeting place is the Biltmore Hotel; the date is Friday, September 12. The speaker will be Bill East, value analysis committee, New Orleans Association.

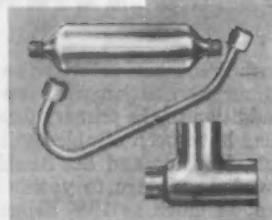
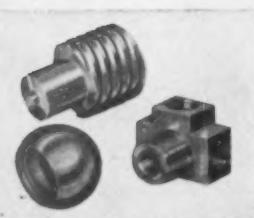
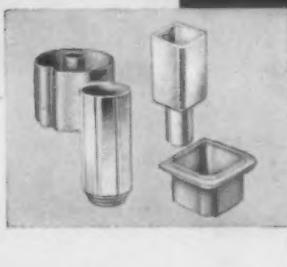
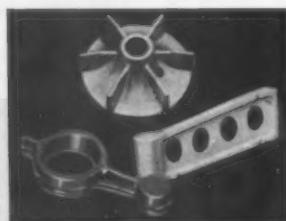
Tentative reservations have been made for public relations, education, and standardization committeemen for the 7th District workshop, slated for September 13, 1958, at the Biltmore.



ONE DEPENDABLE SOURCE for all your fabricated metal parts

**only MUELLER BRASS CO. offers
all these metal fabricating methods to assure
you the best product at the best possible price**

To obtain the desired physical and design requirements in a part at the lowest unit cost, there is usually one specific process by which that part can be most successfully and economically manufactured. Because the Mueller Brass Co. offers all these methods of production, you get sound engineering, the best method of fabrication and the assurance of getting the best product at the lowest cost. Sales and engineering service is available to you at Mueller Brass Co. offices throughout the United States. Make Mueller Brass Co. your one dependable source for all your fabricated part needs.



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The Mueller Brass Co. is the world's largest producer of brass, bronze and aluminum forgings.

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The Mueller Brass Co. now offers "Cold-Press" non-ferrous and ferrous impact extrusions. Flexible new facilities makes practical either long or short production runs of simple or complex shaped parts on an economical basis.

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The Mueller Brass Co. maintains one of the largest automatic screw machine departments in the country, specializing in the manufacture of non-ferrous parts . . . completely equipped to perform secondary operations.

powder metal parts

Precision ferrous and non-ferrous powder metal parts are available from Mueller Brass Co. through its subsidiary, The American Sinteral Corporation.

castings

The Mueller Brass Co. has a modern foundry equipped to produce quality brass and bronze castings to your specifications.

formed copper tube

The Mueller Brass Co. offers complete facilities for producing formed copper tube shapes and assemblies to the most demanding tolerances.

also producers of:

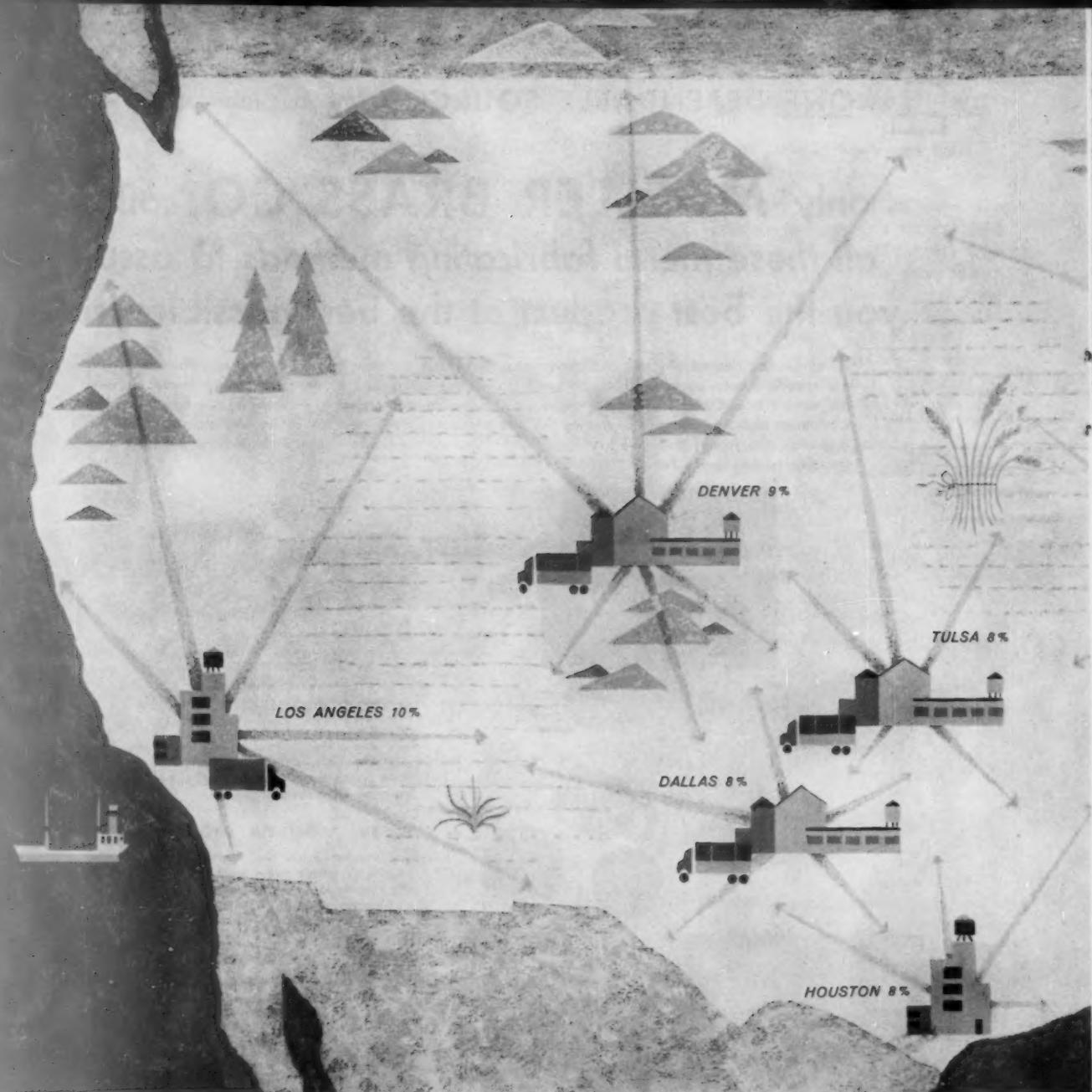
Super Cutting Red Tip Brass Rod • Aluminum Extrusions • Aluminum Sheet, Coil and Strip • Plastic Pipe and Fittings • Copper Tube and Solder Type Fittings.



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SEPTEMBER 15, 1958

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NEW SAVINGS ON

Look at the map
to see how much
less you pay!

Worthington has reduced the cost of SESC pumps by spanning the nation with *new regional assembly depots*. In addition to the primary depot in East Orange, (N.J.), others have been established in Cleveland, Atlanta, St. Louis, Houston and Los Angeles. Worthington can now pass along savings to you in three ways. One, on the price: as much as 10% depending upon your location. Two, on time—because your order can be processed and shipped in a matter of hours. Three, on parts service—because each of the assembly depots maintains a stock of spare parts.

In addition to assembly points, Worthington also maintains stocks of completely built pumps in Buffalo, Chicago, Denver, New Orleans, Dallas and Tulsa.

But there are other reasons why SESC (standard end



WORTHINGTON PUMPS

suction centrifugal) is far and away your best pump buy. Standardization gives you a high degree of interchangeability. Pumps may be all iron, all bronze, standard fitted, or Worthite*. 120 different sizes, with open or closed impellers are available with capacities up to 2700 GPM and heads to 550 Ft. Conventionally packed boxes or mechanical seals are optional in all pumps, and conversions from packed boxes to seals may be made on units in the field. All in all there are 70,480 modifications of the SESC pump to choose from—the broadest combination the pump industry has to offer.

SESC pumps also give you these benefits of standardization. You can cut your spare parts inventory by 50% because only four bearing frame sizes are used for the entire 120-pump line, and all pump parts are interchangeable.

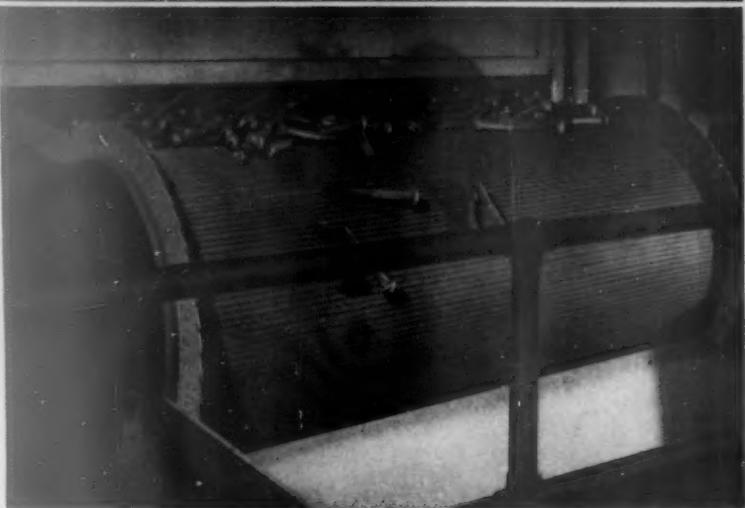
able. This means reduced downtime if repair or conversion is made. Finally, one basic design for the complete line simplifies maintenance and lowers overall operating costs.

Take advantage of the new low costs—the speeded delivery—the many outstanding features of the Worthington SESC line now. For detailed information, write for Bulletin W-300-B48. Worthington Corporation, Section 20-3, Harrison, New Jersey. In Canada: Worthington, Ltd., Brantford, Ontario.

*Worthite is a high nickel, high-chromium, low-carbon alloy steel. Trademark Reg. U. S. Pat. Off.

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By combining movement with processing, Cambridge Woven Wire Conveyor Belts can help cut operating costs, maintain high product uniformity and increase production. Open mesh provides free air, liquid circulation for quick, thorough treatment of products. All-metal construction is heatproof, cold-proof, rustproof. Nine basic weaves available in any size or mesh. Belts can be woven from any metal or alloy to take up to 2100° F. or sub-zero temperatures, yet resist attack from water, acid or caustic solutions. Lack of seams, lacers or fasteners mean long belt life, less maintenance. Special surface attachments or raised edges available. Let your Cambridge Field Engineer recommend the belt design best suited to your needs.

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BELTS

WIRE
CLOTH
FABRICATIONS

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Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

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Association News

Milwaukee County Board Centralizes

The Milwaukee County Board of Supervisors has adopted an ordinance covering centralized purchasing, i.e., one purchasing director to do the buying for all departments. Under the present system, in use for more than 100 years, each department at the Milwaukee County court house, has done its own purchasing, with no supervision by a general purchasing agent. Under the new system all purchasing will be done under one head. The same is now being done for the city of Milwaukee, under the direction of the Milwaukee Board of Purchasing, of which Jos. W. Nicholson is secretary and purchasing agent.

New Jersey Ass'n Plans for '59

The Purchasing Agents Association of North Jersey has been relatively quiet due to vacations. However, the new officers have been very busy establishing the 1958-59 program which is expected to get into full swing by the middle of September.

The Association is represented by over 400 active members from both minor and major industries throughout New Jersey.

This Association is affiliated with the "National Association of Purchasing Agents" which boasts of over 16,000 members.



"Can I have my candy back? He
didn't buy anything."



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Check these important advantages for your power transmission needs:

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Horsburgh and Scott worm-gear generating methods guarantee perfect mates in each set, with worm threads and gear teeth having identical pressure angles and tooth contours. Resultant smooth conjugate action delivers maximum right angle power transmission with minimum power loss. H & S gives each set a controlled inspection on the correct center distance for tooth contact, backlash and smoothness.

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Association News

Intermountain P.A. Conference, Sept. 26-27

"EXPANDED SPHERES OF PURCHASING" will be featured as the theme of the 12th annual Pacific Intermountain Purchasing Agents Conference to be held at the Hotel Utah, Salt Lake City, September 26-27. The conference is sponsored by the Purchasing Agents Association of Utah. Under the able chairmanship of J. Merrill Bushnell, plans for the two-day affair are rapidly crystallizing. Program arrangements confirmed to date include addresses by Gordon Burt Affleck, president, National Association of Purchasing Agents, G. W. Howard Ahl, executive secretary-treasurer, NAPA, and John A. Hill, president, Air Reduction Co., Inc., New York City. An afternoon plant visit is scheduled to the steel mill and chemical plant of U.S. Steel's Geneva Works, followed by an outing in a nearby canyon. Also, John R. Hairgrove, vice president, District No. 1, is expected to occupy a prominent place on the program. Round table forums on selected subjects are in preparation.

For the many western purchasing agents who did not hear Mr. Hill at the national convention, this conference will be an excellent opportunity to meet and hear this able speaker who is a real friend of purchasing.

Everyone interested in purchasing is cordially invited and registrations are now being accepted. Late September is a delightful time to be in Salt Lake City. The hot weather will be over and good accommodations will be readily available. Any purchasing people planning a vacation trip into this area of many and varied interests would do well to plan it for the time of this conference. Wives should be included, of course, as a ladies' program is planned and they will find much of interest in this pioneer city. For auto travelers the brand new Hotel Utah Motor Lodge, only a block from Hotel Utah, offers attractive accommodations and several other first class motels are close by.

Inquiries and requests for reg-

istration should be addressed direct to Mr. Glen E. Youngberg, P. O. Box 1229, Salt Lake City 10, Utah.

Installation of newly elected officers and directors took place earlier this summer at a monthly dinner meeting held at the Desert Inn, Salt Lake City, Utah.

The new president is Wendell L. Emmertson, purchasing agent for Salt Lake Refining Company (Standard Oil Company of California). He succeeds Charles B. Bartlett, purchasing agent and treasurer for Allen Steel Company, who was elected national director. The other officers are Clyde A. Theobold, Vitro Uranium Company, vice president; Glen S. Winegar, Salt Lake City Board of Education, secretary; and E. Thomas Lloyd, Beneficial Life Insurance Company, treasurer, all of Salt Lake City.

The new Board of Directors includes Gordon O. Richards, Gray-Bowen, Christensen Diamond Products Company; William Bar Electric Company, chairman; Fuel Supply Company; Joel H. Fabian R. Hickman, Mountain Pershing James, Church of Jesus Christ of Latter-Day Saints, all of Salt Lake City; James D. Eide, Ogden City Corporation, Ogden, Utah; and Cornelius R. Peterson, Brigham Young University, Provo, Utah.

Cincinnati PA's Elects Officers

The Cincinnati Association of Purchasing Agents elected the following members to their Board of Directors: President, Lynn C. Percival, American Tool Works Company; 1st. Vice President, Clifford C. Oehler, Jones & Laughlin Steel Corporation; 2nd Vice President, Harold O. Wagner, Vulcan Supply & Metals Company; Treasurer, William D. Tittle, Weber Engineered Products, Inc.; Secretary, Maurice J. Halpin, Jr., Wm. T. Johnston Company; National Director, Andrew Hopple, Nutone, Inc.; Trustees: Robert W. Smith, Alvey-Ferguson Company; Ray H. Louder, Fay & Egan Company; Karl E. Blum, United States Playing Card Co.



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FEDERAL STAMPING COMPANY
7319 Atoll Ave., No. Hollywood, Calif.

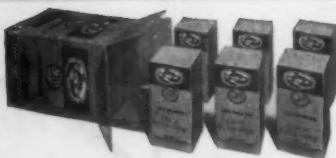
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Keg Size JOB-PAK — the original Job-Pak container with 6 inner cartons, each containing 1/6 the contents of a keg.



½ JOB-PAK — contains 4 inner cartons each containing 1/6 the contents of a keg.



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Standard Inner Carton — containing 1/6 the quantity of a keg is the basic unit of the JOB-PAK system of packaging.

*SPLITS — (½ Size Inner Carton)
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Write for tables showing how JOB-PAK divides standard bulk quantities into convenient shelf-stock packages, labeled and counted.



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Association News

Eighth District Conference, Oct. 16-17

Several national leaders in industrial purchasing activities and from business have been booked for the two-day 8th District Conference for National Association of Purchasing Agents membership in Elmira on Thursday and Friday, Oct. 16-17.

The program will be held at Mark Twain Hotel and is being sponsored by the Elmira (N. Y.) Association of the NAPA. Theme for the gathering will be "Purchasing's Challenge." Ralph P. Baker Jr., general purchasing agent for Corning Glass Works and president of the host association, will serve as conference chairman.

The conference theme will be the subject of an address at 10:30 a.m. on the opening day, Thursday, Oct. 16, by Tomlinson Fort, vice president of the Apparatus Division and general sales manager, Westinghouse Electric Co., Pittsburgh.

A yet-to-be-announced president of a large corporation will give the keynote address at the first day's 9:30 a.m. meeting. His subject will be "Business Challenge." Other top speakers will include Gordon B. Affleck of Salt Lake City, Utah, national president of NAPA; George A. Renard of The Journal of Commerce, New York City; and G. W. Howard Ahl of New York City, executive secretary-treasurer of NAPA.

Several special events are being planned for wives of NAPA members. On Thursday morning they will be guests for a tour of the Corning Glass Center, 18 miles from Elmira, with buses leaving the conference hotel at 9:15 a.m. Lunch that day will be served at Corning Country Club.

Thursday evening the women will be special guests for a social hour at 6 p.m. and for the conference banquet at which Major Rex S. Morgan, U. S. Army, at Denver, Colo., former assistant professor of military science and tactical ROTC at Cornell University, who is billed as a rapid-fire humorist "who sees the funny

side of everything", as speaker. Dancing is planned from 9 to 1.

Reservation applications have been mailed to the secretaries of all 8th District purchasing organizations and mail reservations will be accepted by Chairman C. E. Woodhouse, president of Brady Electric Co., Elmira, through Oct. 10. The checks should be mailed to and payable to: 8th District NAPA, c/o Executive Office, Mark Twain Hotel, Elmira. Facilities to register latecomers will also be set up in the hotel lobby the opening day of the conference.

A. Kemp Stevens, director of Inc., Syracuse, is handling arrangements for exhibitions, with purchases for Aircooled Motors booth space still available to suppliers.

New Officers for Federal Procurement Ass'n

The Federal Procurement Officers' Association of Northern California announces the election of new officers. Those elected are: president, Donald K. Maloney, Headquarters Sixth U. S. Army, Presidio of S.F.; vice president, Mrs. Rosita L. Cobb, Benicia Arsenal, California; secretary, Herbert R. Schlomig, General Services Administration, S.F.; and treasurer, Tetsuo Ihara, Letterman Army Hospital, Presidio of S.F. A recent "kick-off" meeting included luncheon for all members and guests at Sabela's in Marin followed by a very interesting tour of the Corps of Engineer's San Francisco Bay Model located in Sausalito, California.

You need only one card to request additional information on any items in this issue. Use the reader service page 32.

Purchasing Profiles

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Allis Chalmers shops... and advertises... in the Yellow Pages,
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Precision Moldings— Automatically

THE FIRST completely automatic continuous process for custom molding of rubber parts has been put into production by the Ohio Rubber Company division of Eagle-Picher Company in Stratford, Conn.

Close-tolerance parts are formed in self-registering molds on 10 machines at costs no greater than those of conventional compression-molding methods. Previously, precision rubber molding resulted in higher costs for the purchasing agent. This process also affords maximum dimensional accuracy and can be used to mold most natural and synthetic rubber compounds.

The operator's only job is to keep the machine periodically supplied with compounded stock and to remove containers of finished parts. Stock is loaded onto a two-well plasticizing mill, from which it is automatically fed into

the molding section of the machine. In a continuous cycle, 104 individual molds mounted on a rotating wheel cut the amount of material needed, carry it through the molding and curing stages, discharge the finished parts on a conveyor and return for more stock. Around 90 percent of the cure occurs in the mold, with the remainder taking place on a slow, covered, heated conveyor leading to a tote box.

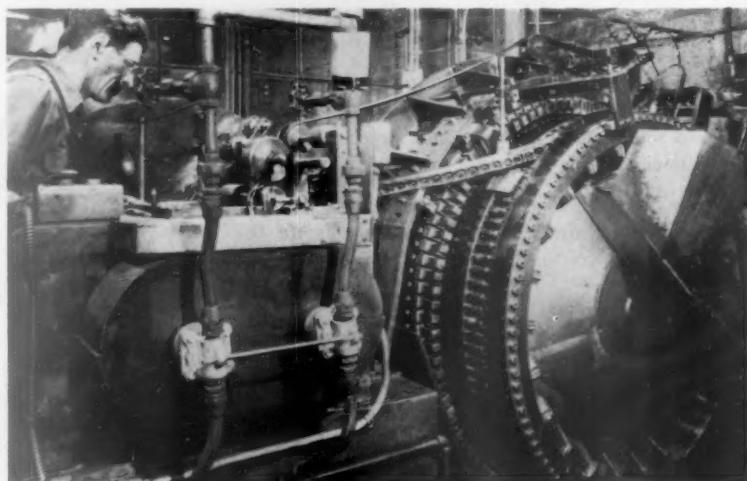
The 48 in. machines can produce up to 200,000 pieces daily, depending on the type of material, size, shape and total mass. Presently, however, the process is best suited to producing large quantities of functional, relatively small parts, requiring accuracy and quality of material. In most cases, quantities of a million or more pieces annually will be required to amortize the tooling cost and set-up. Maximum dimensions of the parts at average production rates are normally around 1½ in. in diameter and 1 in. in thickness.

Because of the continuous nature of the operation, time and temperature are precisely controlled throughout the molding-curing cycle. Single-cavity molds provide for accurate application of pressure, resulting in uniform flash, greater precision, and reduced finishing costs.

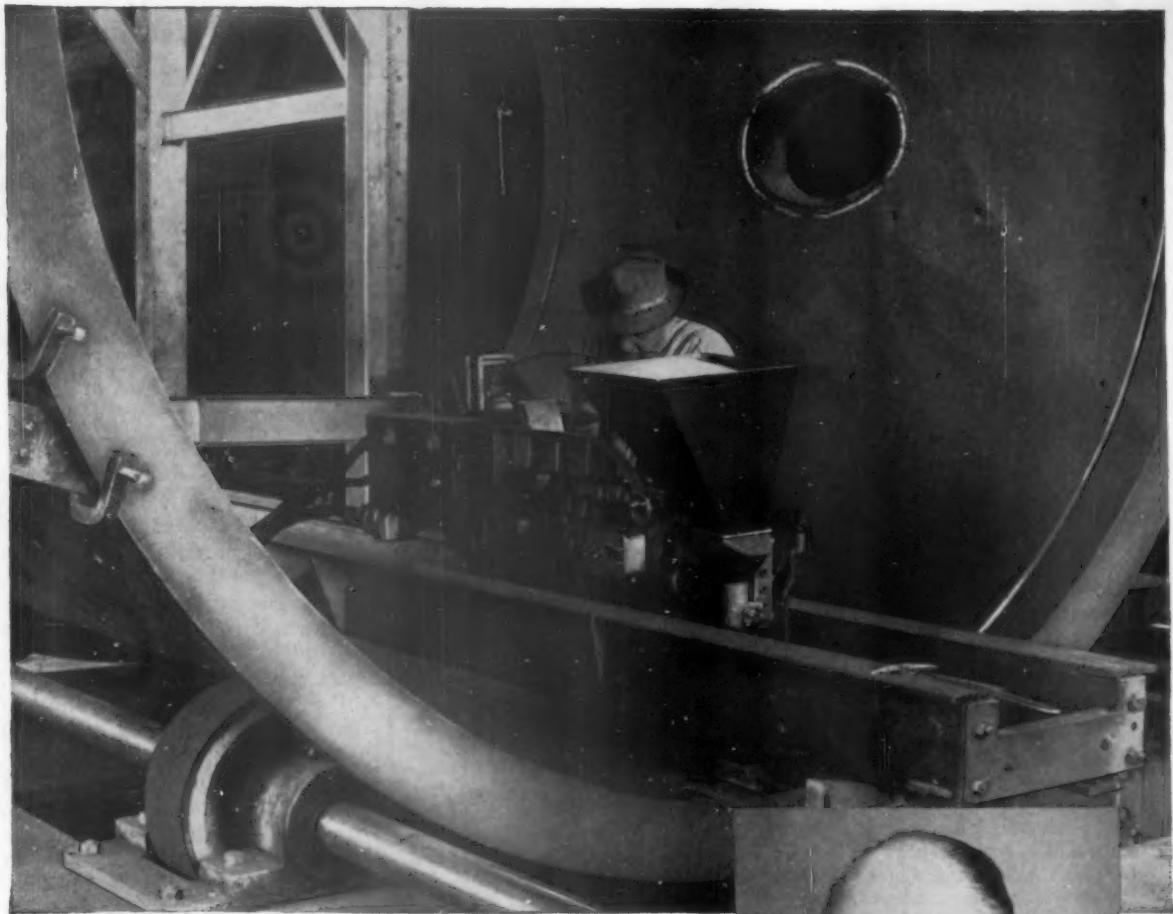
Tolerances as tight as plus or minus 0.005 in. are generally considered routine for rubber parts produced by this molding process. For some parts, tolerances of plus or minus 0.002 in. are being held. Accuracy is substantially the same for fixed or closure dimensions, because flash is so precisely controlled.

Among the parts that can be produced by continuous molding are seals, stem deflectors, washers, caps, fastener components, bushings and gaskets. Most immediate applications will be in the electronic, automotive and appliance industries, where parts are used in large volume and require significant dimensional accuracy in order to perform satisfactorily.

The methods and equipment for the process were originated by the Gora-Lee Corporation. As originally developed, it was limited to high-Durometer compounds and applied exclusively to a few small proprietary parts. Following its purchase of Gora-Lee, Ohio Rubber extended the versatility of the process—which can now be used with a wide range of physical properties, embracing Durometer hardnesses from 45 to 95.



Time and temperature are precisely controlled throughout the molding-curing cycle. Single-cavity molds provide for accurate application of pressure, resulting in uniform flash, greater precision and reduced cost.



Many of Mine and Smelter's Marcy grinding mills are equipped with Standard Steel flange rings, shown above. No flange ring replacements have ever been required. Some of these mills have been operating 24 hours a day for more than 15 years.

"'Dependability' is the keyword in our very fine relationship with Standard Steel"

We at Standard are happy indeed that Mine & Smelter Supply Co.'s chief engineer, J. R. Grout, appreciates the efforts we have gone to over the years to combine dependable service with our know-how and quality standards.

We consider it our responsibility to help maintain the world-wide reputation for quality mining and industrial equipment which Mine & Smelter Co.'s Marcy Mill Division enjoys by providing this customer with the same fine service it renders, in turn, to *its* customers.

Won't you discuss your needs for weldless rings, flanges, forgings and castings with us. You will appreciate our personalized service. Write Dept. 5-J.



"Standard Steel for many years has been supplying our company with shell flange rings, as well as riding and roller tires for use on our Marcy Grinding Mills and other rotary-type equipment. Their product quality and cooperation have helped make it possible for us to serve our customers promptly—our company policy. I believe the word 'dependability' is the keyword in our very fine relationship with Standard Steel," says Joseph R. Grout, chief engineer, Marcy Mill Division, Mine & Smelter Supply Co.

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SEPTEMBER 15, 1958

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GEAR PERFORMANCE to match the ever-increasing power and speed of modern machines is a Fairfield specialty. This is possible because Fairfield has long held a position of leadership in utilizing the most advanced methods, equipment, and techniques for producing better gears. By keeping apace with modern engineering trends, Fairfield renders an invaluable service to many of the nation's leading machinery builders.

If you have a gear problem, check with Fairfield. Our engineers are well-qualified to give you expert recommendations. CALL OR WRITE.

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HERRINGBONE—(Fellows Type). Sizes from 1½" to 15"

SPIRAL BEVEL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 28" dia.

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HYPOID—Sizes from 1½" to 28" dia.

ZEROL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 21" dia.

WORMS AND WORM GEARS—Worms to 7" dia. Worm gears to 36" dia.

SPLINED SHAFTS—Lengths to 72".

DIFFERENTIALS—3,000 to 500,000 inch pounds capacity.

Note: All of the sizes above are approximate.

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MINING MACHINES • ROAD GRADERS • BUSES • STREET SWEEPERS • INDUSTRIAL LIFT TRUCKS

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Made to Order for:



FINE
GEARS

Cold Headings

(Continued from page 79)

minus 0.005 inch of the drawing dimensions. About the best that can be expected on the lengths of parts is approximately plus or minus 1/32 inch. As with other metal forming methods the degree of dimensional accuracy is closely related to the shape being produced. Too, closer dimensional control can often be realized by paying a cost premium and reducing the rate of output.

When to Choose

Perhaps the first requirement that should be met before cold heading is decided upon is that of quantity required. Although there is no hard and fast rule, most producers feel that a minimum quantity of 25,000 pieces should be involved. When a complex part is under consideration, it is likely that the minimum figure will be upped to 50,000 pieces.

Then, granting that the quantity requirements are high enough, the size and shape elements become the important factors. In looking for parts made by competitive methods which could be shifted to cold heading, the most likely field is that of screw machine parts. However, the latter can be larger, more accurate and more complex.



"Hold it, Mr. Podsnap—we'll have to close the deal after lunch. I'm off from twelve to one."

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PITTSMITH PLATE GLASS COMPANY

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SEPTEMBER 15, 1958

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Suppliers In The News

The T. J. Cope Division, Rome Cable Corporation, Collegeville, Pa., has made two new appointments to their sales force. Robert M. Wade is the new sales manager at the division. He has been with Cope as sales engineer since August 1955. Prior to that he had been in industrial sales. Cope also has expanded its sales department with the addition of Frank Kennedy as special sales engineer. Mr. Kennedy had been with Cope from 1948 to 1954 prior to joining Delta-Star. He has now returned to Cope.

Herbert L. Gressens has been promoted to sales manager of the electric utility division of **Whirlpool Corporation, St. Joseph, Mich.** Until recently on special sales assignments, Mr. Gressens succeeds C. Reg Armstrong, now general manager of the RCA Whirlpool Detroit Sales Division. Prior to joining Whirlpool in late

1956, Mr. Gressens was general sales manager of Culligan, Inc., Northbrook, Ill. From 1938 to 1946 he was with Firestone Tire & Rubber Company, Akron, Ohio. There he rose to the position of buying and merchandise manager in the home and auto supply department.

The appointment of Edward Danielson, Jr. as regional manager for its newly created West Coast Region has been announced by **The Okonite Company, Passaic, N. J.** Included in the new territorial division are the Los Angeles, San Francisco, Portland and Seattle sales offices. Mr. Danielson joined the company's San Francisco office in 1947, serving as office manager and district engineer. In 1950, he was named district manager of the Los Angeles office which post he filled until his recent promotion.

Howard R. Hoskin has been appointed sales manager of **S. W. Card Division of Union Twist Drill Company, Mansfield, Mass.**



Howard R. Hoskin

Mr. Hoskin has been a Card sales engineer in Eastern Ohio and Western Pa. for the past three years. Previously he was a manufacturers' agent handling small tools, inspection equipment, and gages, and before that he was a tool expeditor at the Cleveland Tank Plant for the Cadillac Motor Company. He was also a member

45 master keys to



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Type 304L
Type 309S
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of the sales and advertising department of the Chesapeake & Ohio Railroad for eight years.

Cold-Prest Impact Extrusion Division of the Mueller Brass Company, Port Huron, Mich., has named Gregory R. Taylor sales manager. A sales engineer for the past eight years, Mr. Taylor was with the Weatherhead Company and the Townsend Company. During the past two years, he was a sales engineer of steel extrusions for the Adrian Engineering and Manufacturing Company.

Paul A. Garrison has been appointed sales manager of the engineering products section, **Special Products Division, I-T-E Circuit Breaker Company, Philadelphia, Pa.** Mr. Garrison joined I-T-E in 1955 as sales representative for the engineering products section. Prior to joining the company he was assistant to the president, Design Service Company, New York City.

Jessop Steel Company, Wash-

ington, Pa. has named John R. Harbaugh as manager of its newly created district sales office in Houston, Texas. Mr. Harbaugh, who formerly headed the district sales office in Detroit joined Jessop Steel in 1940 as a metallurgical service engineer. In 1946, he was named assistant general sales manager and became assistant vice president-sales in 1952. He has been manager of sales for the Michigan district since 1954.

Royal Metal Manufacturing Company, New York, N. Y., has announced the appointment of Walter J. Daily as national sales manager. Mr. Daily was formerly vice president, sales of F. C. Russell Company and vice president and general manager of the Lewyt Corporation, Vacuum Cleaner Division. He has also held positions as director of advertising and sales promotion at both General Electric and Bendix Home Appliances.

Athol Division, Union Twist Drill Company, Athol, Mass. an-

nounced the appointment of Norman H. Holland as sales manager. Mr. Holland will be in charge of all sales, distribution, advertising and warehousing activities covering all metal cutting tools manufactured at and distributed from Athol, Mass.

Jack F. Guyer has been named sales manager of **Rome Cable Corporation's Cleveland, Ohio** district office. Mr. Guyer succeeds C. L. Evans who is retiring. Mr. Guyer formerly worked in the company's Pittsburgh, Pa. and Columbus, Ohio offices as sales representative. He joined Rome Cable in 1939.

The appointment of Julian J. Bursten as sales manager of the **Ketchum-Jersey Division, Cranford, N. J.**, has been announced by **Ketchum & Company, New York, N. Y.** Mr. Bursten will be responsible for Ketchum sales throughout Northern New Jersey. He replaces David F. Goldstein, who was recently promoted to New York division manager.

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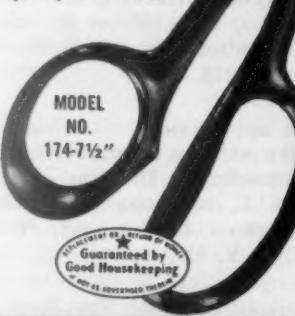
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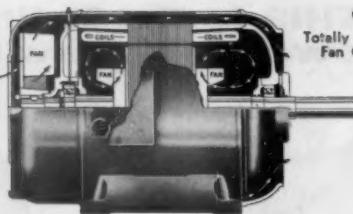
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Experience: Purchasing, 6 years—job shops & prime contractors—screw machine parts, stampings, compression & injection moldings, electrical components, ferrous & nonferrous materials, machine tools, mill, packaging & office supplies. Allied Experience: production control, new product value analysis & development, estimating, systems, quality control, vendor negotiation, administration.

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Education: Graduate of high school, graduate of human relations course.

Will relocate. Write: Box 192.

Experience: Thirteen years as purchasing agent large electro-mechanical industry. Past seven years affiliated with automotive. Broad experience all phases of procurement including subcontracting, value analysis and cost reduction.

Education: Two years of college, major business administration.

Will relocate. Write: Box 193.

Experience: 12 years in purchasing for home freezer, refrigerator, air conditioner, cooling fan, dehumidifier manufacturer in Chicago area. Purchasing agent level, \$8,000,000 annual personal responsibility. Production planning, scheduling, systems, inventory control, estimating, scrap disposal.

Education: High School. Write: Box 194.

Experience: Pennsylvania registered chemical engineer with experience in purchasing, plant engineering, and construction desires position as P.A. with an expanding company. Age 37. Excellent contacts and references.

Education: B.S. degree chem. engr. Graduate work in economics and personnel administration.

Prefer Philadelphia area. Write: Box 195.

Experience: Purchasing agent eight years for machine tool builder and cutting tool manufacturer. Experienced in procurement of all metals, castings, fabrications, electrical components, supplies. Responsible for inventory control, value analysis, economic procurement quantity, standardization. Experienced in the installation and maintenance of those systems and procedures essential to a most efficient procurement function. Age 31, married, member N.A.P.A.

Education: Degree B.S. in B.A. Also attended courses in procurement. Attending four year school for industrial management.

Prefer New England area. Write: Box 196.

Experience: Purchasing agent. Twelve years in the petroleum and chemical industry both manufacturing and engineering and construction. Staff accountability. Organizing of purchasing & traffic departments. In charge of all MRO and contract commitments. Responsibilities included value analysis, coordinating data from engineering, legal, accounting, traffic, scheduling departments, and execution of departmental policies.

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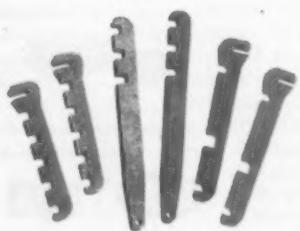
Experience: Interested in obtaining industrial purchasing agent position. Two years experience as purchasing agent for machine shop employing 1,000 men. Experienced in buying fabricated steel parts, tool steel, cold rolled bar stock, and all types of castings such as aluminum, steel, iron, brass, and bronze. 26 years of age.

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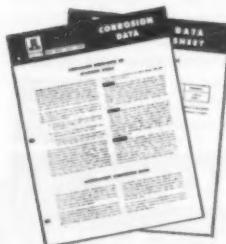
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SEPTEMBER 15, 1958

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materials-handling

news



NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



Idlewild Airport economizes with Bassick Floating Hub Casters

Here at the International Arrival Building, at New York International Airport, baggage moves quickly and easily on carts with Bassick Floating Hub Casters.

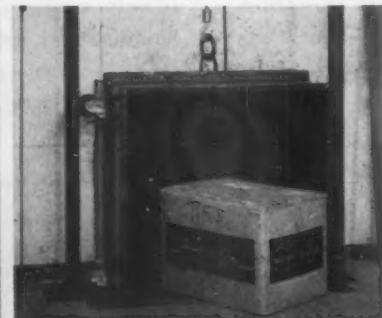
Why use Bassick Floating Hub casters here? Because actually, in the long run, they're less expensive, more economical than ordinary casters. Floating Hub construction cushions shocks, snubs out vibration which could harm baggage, floors or casters. As a result floors and casters

last longer, and loads move faster and baggage isn't jiggled off carts.

These same principles of protecting floors, loads, and casters and of permitting higher speeds apply in any business, or industrial plant usage. Bassick Floating Hub Casters can save you money—not merely in handling fragile products—but on many general duty caster jobs as well. Test out a set of four on the job in your plant and see for yourself.



ERECTO PALLET TURNTABLE turns on six inverted heavy duty Bassick Casters. Placed at end of conveyor line, it lets operator load up one side as lift truck removes palletized loads from the other. Made by Lamson Corporation, Syracuse, N. Y., here's another quality product using Bassick Casters.



CASTERS GUIDE DUMBWAITER at Rochester Stationery Company, Rochester, N. Y. Bassick Grooved Wheel Casters operating on angle iron guides hold this home-made elevator steady as it runs between basement and first floor. Can you use this ingenious material handling idea?



REVOLVING STAGE for the show, Plain and Fancy, rides casters at Bridgeport, Conn. That city's amateur Polka Dot Players have ingeniously constructed a 3½-ton revolving stage. It moves on 12 Bassick 6" Series H99 Grooved Wheel Casters operating on a 25-foot circular track.

8.42



The man in your town to help keep costs down

He's your local distributor who handles Bassick Casters. He can help you hold handling costs to a minimum with time-and-money-saving, longer-lasting, easier-working casters. Get to know him better.

SEE OUR CATALOGUE
Sweet's
of White Plains, N.Y.

Bassick
SYMBOL OF EXCELLENCE
SW
MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

THE BASSICK COMPANY

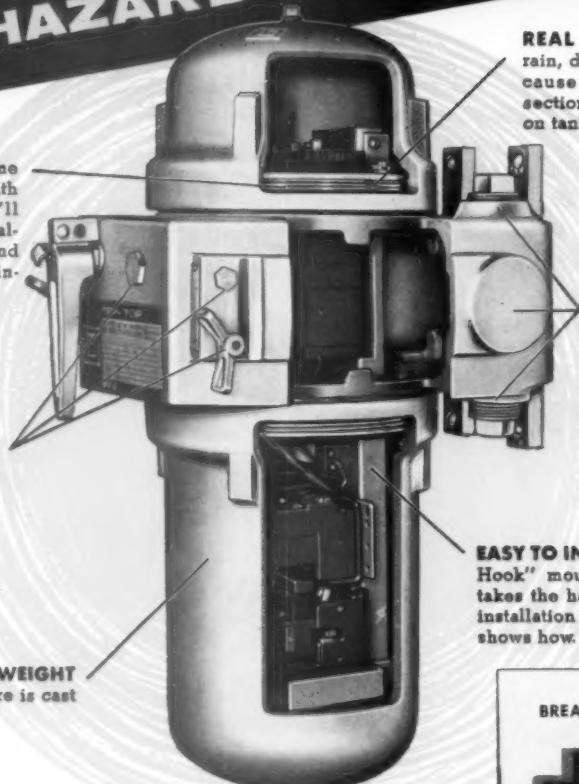
Bridgeport 5, Conn.
In Canada: Belleville, Ont.

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Square D announces...

NEW SPIN TOP FOR HAZARDOUS LOCATIONS

DAMAGE-RESISTING Acme thread. If you've struggled with "banged-up" threads, you'll appreciate this feature. It's always a breeze to put on and take off tanks for installation, inspection or maintenance.



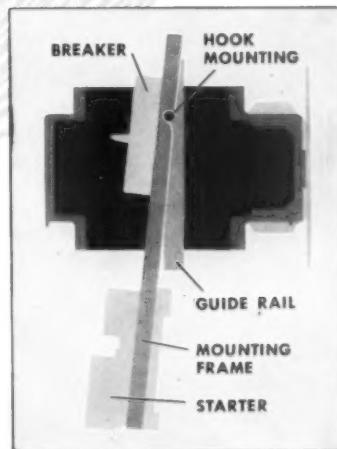
REAL PROTECTION against rain, dust, dirt and weather because male threads on collar section engage female threads on tank.

EASY TO ADD pushbuttons or selector switches with easy-to-buy, easy-to-use "off-the-shelf" parts kits.

STRONG and LIGHTWEIGHT
The complete enclosure is cast aluminum.

INCREASED WIRING SPACE and through-feed conduit entrances for horizontal tap-offs.

EASY TO INSTALL • "Slide and Hook" mounting arrangement takes the hard work out of the installation job. Diagram below shows how. →



SLIDE and HOOK MOUNTING

4 SIZES FOR STARTERS SIZE 0 THROUGH 5

CLASS I, GROUP C and D • CLASS II, GROUP E, F, and G

The new **SPIN TOP** enclosure is available from your Square D Distributor in three ways—complete device, enclosure only, or components only...for reversing and non-reversing across-the-line starters and combination starters. And for combination and non-combination two-speed starters.

Write FOR BULLETIN 9990

Square D Company, 4041 North Richards St., Milwaukee 12, Wis.

EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE



SQUARE D COMPANY

New Beauty on Cleveland's Skyline

Got lifetime service valves
and got them fast
by choosing JENKINS

More than top quality in valves was required for this \$17,000,000 aluminum-and-glass building, completed in April 1958 to provide offices for the Cleveland Electric Illuminating Company and other industrial and commercial tenants. In addition to valves that would last for the building's lifetime, the builders sought assurance that a close delivery date would be met.

Both were assured by the choice of Jenkins Valves for all plumbing, heating and air conditioning lines.

For almost a century the name JENKINS has meant enduring quality. Jenkins Valves in service for fifty years and good for many more are often reported.

And, when valves are needed quickly, Jenkins' efficient, national system of distribution can't be surpassed. Jenkins Bros., 100 Park Avenue, New York 17.

Architects:

Carson and Lundin, New York

Consulting Engineers:

Jaros, Baum & Bolles, New York;

McGeorge, Hargett and Associates,
Cleveland

General Contractor:

George A. Fuller Company, New York

Heating-Air Conditioning Contractors:

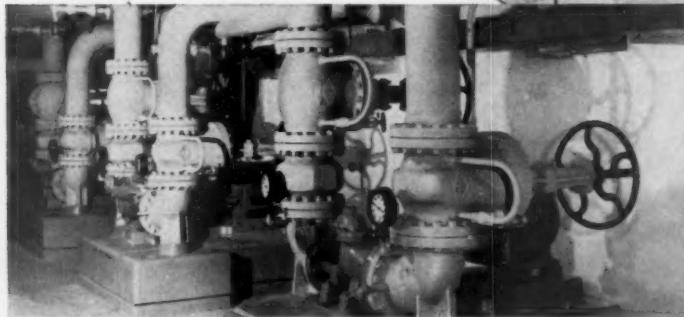
Kerby Saunders Company, New York;
Feldman Brothers Company, Cleveland

Plumbing Contractors:

Kerby Saunders Company, New York;
Gorman Lavelle Plumbing-Heating Co.,
Cleveland

Managing Agents:

Ostendorf-Morris Company, Cleveland



Typical of more than 4,000 Jenkins Valves of bronze, iron and cast steel serving this building owned by the 55 Public Square Corp., Cleveland.

THE ILLUMINATING BUILDING



JENKINS
LOOK FOR THE JENKINS DIAMOND
VALVES



Sold Through Leading Distributors Everywhere

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